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THE FUNCTION OF THE PARATHYROID GLANDS *

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The remarkable advance in our knowledge of the organs of internal secretion which has taken place in recent years has brought much light on the parathyroid glands, but still their function and relations to the other organs are very obscure.

Their anatomy is by this time fairly well known, particularly to surgeons to whom they have become an object of especial care in operations on the thyroid. Lying, as the parathyroids do, along the posterior margin of the thyroid usually two in number on each side, they may be found as small, flat, soft, yellowish-brown bodies embedded in the loose connective tissue or in the fat or plastered against the thyroid. Generally there is one at the notch of entrance of the inferior thyroid artery and one somewhere else either above or below, sometimes even far down in the fat below the lower pole of the thyroid. They have their own blood-supply from a branch of the inferior thyroid, in the one case, and often from a branch of the communicating trunk between superior and inferior thyroid, in the other. So inconstant is their arrangement, however, that a composite picture of many dissections shows them occupying every point in a band from top to bottom of the thyroid. Accessory nodules also occur sometimes, now embedded in the thyroid, now in the thymus, at other times free in the loose tissues of the neck. Relatively easy to find in the dissection of a normal neck, they become widely displaced and flattened out of all recognition in the very cases of goitrous enlargement of the thyroid in which it is so important that they should be discovered and spared, and surgeons have devised many means for safeguarding them by giving them a wide berth.

The parathyroid glands were twice discovered—once in 1882 and again in 1892 — and their name, as well as their situation, has suggested that they must be intimately related, if not identical with, the thyroid. In spite of this assumption, which it has taken years to escape and which is still tenaciously adhered to by certain English investigators, it is now well established that embryologically, histologically and in their functions they are entirely distinct from any other organ of the body — quite as distinct as the adrenal or the hypophysis. Composed of anastomosing strands of cells with a rich blood-supply, they are very easily recognized under the microscope, not only by their general structure, but by the peculiarities of their cells which fall fairly readily into two or even three groups.

These glands have been studied with regard to their function by the familiar methods of extirpation and of watching the effects of their extracts, but so striking are the symptoms which rapidly follow their destruction that these symptoms alone have engaged the attention of most investigators. Collectively they are spoken of as tetany, and no matter in what way the inadequacy of the parathyroids be produced, these symptoms are nearly constant in their character though not in their severity. Indeed, it is not necessary that the parathyroids be disturbed at all for these symptoms to appear, for under some conditions which we understand most imperfectly the severest form of tetany may arise in spite of the presence of the intact glands. Then we must regard them as relatively insufficient or inadequate to the increased strain imposed on them.

If we parathyroidectomize an animal, outspoken symptoms appear only after the lapse of a day or two, although in the meanwhile a gradual change in the excitability of the nervous system develops and finally reaches such a degree that its effects become evident in the form of muscular twitchings over the whole body, a curious fibrillary quavering of the muscle fibers of the tongue, tonic contractions of the facial muscles which distort the face, of the laryngeal muscles which produce a stridorous breathing, and of all the muscles of the body which stiffen the limbs and the trunk and render the animal awkward or helpless.

With this rigidity come more and more violent clonic convulsions of all the muscles — the jaws snap, biting the tongue, and the whole body is thrown into the most intense spasms. So furious is the muscular work that the temperature quickly rises, and in the case of the dog there appears a most rapid panting respiration brought on by the reflex attempt to dissipate heat. In an attack of this sort the animal may die or it recovers and lapses into complete fatigue, only to become again rigid and seized with convulsions.

These are the most striking symptoms, but there are also sensory disturbances, paresthesias and painful sensations and disturbances of the alimentary tract, of the vasomotors, etc., as well as an underlying cachexia which, even if the motor symptoms are lacking, may lead to the death of the animal.

In watching such symptoms, one is impressed with the probability that they arise from some disturbance of the nervous system, and, indeed, it is easy to recognize objective signs of this. On tapping over a motor nerve a muscular jerk is produced by a tap of the finger which would be unnoticed by a normal animal. So, too, electric shocks far too weak to cause any muscular jerk in a normal animal will produce a violent contraction in the animal in tetany. Accurate measurements of this

* Read in the Symposium on Internal Secretions in the Joint Meeting of the Sections on Practice of Medicine and Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

electrical hyperexcitability of the motor nerves can easily be made, and it is found that it is especially the response to the cathode's opening shock that is characteristically altered, although the other forms of stimuli are also more readily responded to. Whereas, 5 milliampères are needed to produce the slightest contraction in the normal, when passed through the nerve, 1/10 milliampère may suffice in the course of tetany to cause a violent jerk. Apparently, this same electrical hyperexcitability is present in the sensory, the vegetative and the sympathetic nerves and it is the underlying cause of all the symptoms, although it, itself, is the effect of the change that follows the loss of the glands.

All workers have inquired as to the localization of the disturbance which produces all these symptoms, and it has been generally assumed, though not proved, that there must be some change in the circulating blood since the affection is so general. Recently, by the aid of experiments, I have been able to throw some light on this. If, constantly testing the electrical excitability of the motor nerves, one cuts such a nerve during tetany, the muscle becomes flaccid and twitching stops, but the excitability of the nerve to the electric shock remains unchanged. If the nerve is cut and then the parathyroids removed, there develops gradually in the separated extremity of the cut nerve the same hyperexcitability as in the intact nerve of the opposite side. Obviously, therefore, some change in the circulating blood produces this change in the nerves. If we so anastomose the blood-vessels of an animal in tetany with those of the leg of a normal animal that the nerves of that leg are bathed with tetany blood, the nerves become hyperexcitable like those of the tetanic animal. If we reanastomose the femoral vessels with their own stumps in the normal animal so that the nerves of the leg are again bathed in normal blood, their excitability returns to normal. If we bathe in the same way the peripheral nerves of one leg of an animal in tetany with the blood of a normal animal, their excitability becomes normal, while it returns to the tetany level if we reanastomose those femoral vessels with their own stumps and thus let the tetany blood flow through again. All this can be done by perfusion from a bottle, and it is seen that whenever tetany blood circulates about the nerves they become hyperexcitable. Since normal impulses from the normal spinal cord produce no convulsions even through hyperexcitable nerve-endings (for it is the nerve and not the muscle which is hyperexcitable) and impulses from the cord of a tetanic animal produce no twitching through nerve-endings rendered normal by circulation of normal blood, it follows that spasms of the muscles must come only when the ganglion cells send out abnormally violent impulses to abnormally sensitive nerve-endings.

The chemical nature of this change in the blood is not known. It may be an active poison or it may be something which withdraws a moderating and quieting influence from the nerve-cells and leaves them in an unbalanced and hyperexcitable condition. We shall see that there is much to say in favor of the latter view.

It has been thought that much would be learned by studying the metabolism of such animals, but the results have been disappointing. There is an increased nitrogenous output, probably on account of the violent muscular work, and most investigators have found an increase in the ammonia fraction. Indeed, there were some who for a time thought that the symptoms might be the result of a poisoning with this excess of ammonia, but that has been abandoned, and it even appears that with proper technical methods there may be no such excess of ammonia excreted. The other nitrogenous substances are not characteristically changed.

More attention has been devoted to the inorganic substances, such as calcium, magnesium, phosphorus, etc., with the most variable results. It was found that the injection of calcium salts into the veins would quickly cut short all symptoms of tetany, and consequently interest was centered for a time on the extent of the excretion of calcium and its proportion in the blood and brain of tetany animals. Most authors have found evidence of the impoverishment of the blood and brain with regard to calcium and also of an excessive excretion of this substance, while others have not agreed with this but have tried to show, on the contrary, that the conditions are either normal or vary so slightly from normal as to give no basis for the explanation of the symptoms. Others, still, have found rather a change in the proportion ordinarily maintained in the tissues between the alkalies and the earthy alkalies, and declare that this is the important point.

The interpretation of such results is difficult at best, for the metabolism of calcium is so complicated and irregular and we are so ill informed as to the states in which it occurs in the tissues, whether as mobile or as fixed calcium, that our crude methods of analysis by incineration, etc., give us little useful information. Nevertheless, the hypothesis which is based on the well-known observation that withdrawal of calcium from a cell, leaving a greater proportion of sodium and potassium, renders the cell hyperexcitable is a tempting one and the facts rather tend to support it.

Of course, the mere fact that it is possible to abolish the symptoms of tetany by injecting calcium into the blood proves nothing, since calcium, like strontium and magnesium, depresses the excitability of even normal nerves to a very low point, and doubtless it is through this property that it masks the symptoms of tetany. So, too, it seems questionable whether the withdrawal of calcium from the food will allow any hyperexcitability to develop, although animals fed for some time with oxalates and citrates develop twitching and convulsions. On the other hand, Erdheim and his co-workers have shown that in those animals in which protracted or chronic tetany can be produced, an extraordinary disturbance of the processes of calcification occurs. The incisor teeth of rats become soft and break off because no calcium is deposited in the dentin, and bones fail to heal because the callus calcification is so delayed. But the implantation of a parathyroid will at once reestablish the calcification, which continues as long as the graft lives.

On the whole, then, the idea that the symptoms of tetany are produced by the withdrawal of calcium from the cells, leaving them hyperexcitable, forms a plausible working hypothesis supported by some facts and not detracted from by any cogent arguments. So it may well be that the change in the blood in tetany is caused by the presence of something which precipitates or renders useless the calcium of the nerve-cells.

That there may be other factors at work is suggested by the occurrence of various trophic disturbances in nails and skin and in the crystalline lens which becomes opaque in some protracted cases of tetany; but it will appear that in attempting to explain the various forms of spontaneous tetany in man, the possible relation of disturbances of the calcium metabolism comes constantly to one's mind.

The ideas as to the intimate correlation of the organs of internal secretion, which have been so elaborated with

regard to the thyroid, adrenal and pancreas, are only beginning to be applied to the parathyroid, and there are experimental data which seem to show vaguely that the activities of the other organs are in some way influenced by the activities of the parathyroid and *vice versa*. Thus, for example, the production of glycosuria is much influenced by these glands, since it appears more readily after their extirpation on the injection of epinephrin than in the normal animal or in the thyroidectomized one Only a beginning has been made, however, in the study of these relations.

In human disease the parathyroid plays a part, so far as we know, in the various forms of spontaneous and postoperative tetany and also in certain diseases which exhibit a disturbance in the process of calcification, such as osteomalacia and rickets.

The simplest example is undoubtedly the postoperative tetany in which the parathyroids may have been removed or crushed or their circulation so impaired that they are unable to function. Usually in such a case there is left behind some gland-tissue sufficient to maintain life if the immediate emergency be tided over, so that there is time for it to reestablish itself or even undergo compensatory hypertrophy. The smallest gland or even a portion of a gland if in good condition seems to be sufficient to carry on the functions of the whole in otherwise normal persons, but still in such persons there is often a long period in which insignificant disturbances seem capable of bringing on symptoms.

It is much more difficult to understand those forms of spontaneous tetany which are not dependent on any injury or disease of the parathyroid glands, but arise as the result of the production in an extreme degree of those conditions which occur in the blood and tissues after parathyroidectomy in spite of the presence of the normal glands. This may perhaps be regarded as an excessive strain before which the normal glands are relatively insufficient. Such, for example, is the tetany which occurs in pregnancy and lactation, although we have no satisfactory information as to the character of the material which so overtaxes the parathyroids, unless it proves correct that pregnancy and lactation themselves involve the extraordinary withdrawal of calcium.

Possibly some different explanation is required in the case of that tetany which occurs sometimes in several members of a family or in some localities in certain sorts of workmen, especially shoemakers. Recently it has been suggested that the character of their food may be at fault and especially the rye bread which at certain seasons contains ergot, since it has been actually found that many of the symptoms of tetany can be experimentally reproduced by poisoning with ergot. Other poisons, too, such as phosphorus, lead, tuberculin, etc., seem capable of producing such symptoms in predisposed persons.

Infantile tetany occurs almost entirely in artificially nourished children and the possibility at once suggests itself that the symptoms are caused by something in the food. Since cow's milk, which is known to be rich in calcium, generally forms the basis of this food, Stoeltzner has actually thought of the tetany as a direct calcium poisoning. Others have shown, however, that relatively little calcium is absorbed by these infants from cow's milk and assume that there must be some other injurious material there. It is at least fairly clear that when the child is given mother's milk or even starchy food, the symptoms tend to disappear, and some have even reported definite cures from the administration of calcium. Analysis of the blood and brains of these infants has given various results, some authors finding the calcium present in normal quantities, others finding it much decreased, while still others lay less stress on its absolute quantity than on the proportion between the alkalies and the earthy alkalies.

Erdheim and his associates have felt that some injury of the parathyroid must be present as the underlying cause and have actually found hemorrhages in the glands (probably produced mechanically at birth) which they think prevent the proper development and functioning of the glands. But these have been observed in normal children, too, and spasmophilic infants have been found without them, so that on the whole the argument for their causal importance does not seem quite convincing, especially when we remember how little parathyroid tissue is required to maintain an otherwise normal animal in health.

Gastric tetany is also practically unexplained in spite of the great amount of study which has been devoted to it and the numerous theories proposed with regard to it. Evidently it is not due to any absolute insufficiency of the parathyroid glands, for they have always been found intact, but rather to the development of a change in the circulating blood like that which arises on the loss of the glands, but produced in some other way, and of such intensity as to cause symptoms in spite of the presence of the glands. Whether this change is due to the absorption of poisonous materials from the obstructed stomach or to the loss of great quantities of gastric juice with its hydrochloric acid one cannot as yet say, although there is some experimental evidence in favor of the latter view.

With regard to osteomalacia and rickets, it may be said that Erdheim's theory as to the important part played by the parathyroid glands rests on his observation of their control of calcium metabolism and ossification, but partly also on the finding of adenoma-like nodules in the glands in several cases of osteomalacia. The obvious similarity between the failure of calcification in osteomalacia and in the parathyroidectomized rats would suggest an insufficiency of the parathyroids in osteomalacia, but the presence of tumor-like growths in these glands seem to point rather to an extraneous cause of the metabolic disturbance and a relative insufficiency of the glands.

With even this slight knowledge of the nature of tetany, several therapeutic measures suggest themselves and have been put into practice with more or less success. Of course, it is well known that gastric tetany can be relieved at once by gastro-enterostomy, that the tetany of pregnancy often stops on the delivery of the child and that infantile tetany may be cured by dietetic and hygienic measures, but in other cases in which the cause is not so plain or in which the parathyroid glands have been destroyed treatment is not so satisfactory.

In postoperative cases and indeed in many others the symptoms may be so violent and threatening as to constitute an emergency, so that some heroic measure is needed to save the patient's life. But when the symptoms are limited to slight twitchings or feelings of uneasiness, other forms of treatment may succeed which would be valueless in the violent form.

As in the case of the thyroid gland, it has been attempted to replace the function of the parathyroid by administering an extract of the gland, and, indeed, this is possible. One can stop the symptoms in a parathyroidectomized animal for a short time by injecting intravenously an extract of the gland. Such injections could hardly be practiced over a long time, however, and the extract has therefore been given by mouth. It has

been shown that the active principle of this extract lies in the nucleoproteid which can be precipitated from the watery suspension by an acid, and Dr. Berkeley reports good results from the use of this material in human cases. The fresh glands could be used in the same way, but the extract is more convenient and much more easily procured. Reported results differ widely, however, for while Berkeley and a few others apply it with enthusiasm, many, including Pineles and Escherich, have found no result from giving parathyroid by mouth. In experimental animals I have never been able to observe much effect from its administration in this way.

Blind efforts have been made for years and are still being made to cure tetany by feeding thyroid extract — sometimes apparently with good results. The explanation that parathyroid material is included in the dried thyroid seems, however, absurd, for the doses would be infinitesimal.

Soluble calcium salts will stop the symptoms of tetany after parathyroidectomy very promptly if injected intravenously, and even if given by mouth in large doses, and it is possible in that way to keep such an animal alive for a long time. It does not cure the condition, however, but only masks the symptoms which appear again when its effect is worn off. Its use must then be, like that of strontium or magnesium, to tide over in emergencies the period of danger, or in protracted cases of a milder type, to relieve the symptoms. Often, after an operation in which the destruction of the parathyroids has not been complete, the remnants will recover their function and hypertrophy so as to be practically adequate to maintain health, and it is in this period of recovery that calcium may be especially useful. In the spontaneous cases of severer character, some writers have reported good results from its use, but others have observed no effect whatever.

Naturally the ideal therapeutic measure would be to implant with their circulation complete new parathyroid glands to take the place of those which were destroyed or to add their influence to that of the relatively insufficient glands, but on account of their small size, this is impossible. Nevertheless, they have been implanted, without reestablishing their circulation, in the sheath of the rectus muscle and other places; and sometimes, even though the central part becomes necrotic, the more superficial layers remain alive. Dr. Halsted has experimented with this method and has succeeded in keeping a dog alive and well for months with such a graft. Its efficiency was proved by the fact that the dog quickly died of tetany when the graft in its turn was excised, and at autopsy no other trace of parathyroid was found. Dr. Halsted states that it is impossible to get parathyroids from animals of another species to grow and very difficult to succeed with glands from another animal of the same species; further, that even with the transplantation of one of the animal's own glands, it is necessary that there should be an actual need of parathyroid function before the graft will take. Still, these are the conditions which exist when the surgeon suddenly realizes that he has excised the parathyroid with the thyroid, and much may be hoped from their immediate reimplantation. Several cases have already been reported in which this and even the implantation of a gland from another person have been successful.

In conclusion, then, it becomes evident that we are very imperfectly informed concerning the parathyroids. It is certain that they exercise a peculiar and very important function in preventing the appearance of an extraordinary change in the circulating fluids, which in turn produce an extreme hyperexcitability of the whole nervous system. What metabolic process is responsible for this change we do not know, but it sometimes makes itself felt in spite of the parathyroid glands. There is much evidence that it produces or even consists in a disturbance in the metabolism of calcium which may well be the cause of the heightened nervous irritability. That the parathyroids control this is shown by the curative effects of injecting their extract or implanting them, and we must hope that in the near future we may be able to perfect this method so as to gain the mastery of the disease.

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THE INTERNAL FUNCTION OF THE PANCREAS *

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The view that the pancreas produces an internal secretion has been generally accepted. No one, however, has been able to obtain from the pancreas an internal secretion and proof of its existence is not complete.

Before reviewing the evidence at hand it would be well to describe briefly the nature and actions ascribed to the internal secretions. The internal secretions are defined as the products of a specific activity of an organ or tissue which pass through the blood to other organs or tissues in which they exert a stimulating or inhibitory influence on the material or energy stored up in the cells. These chemical bodies which form the internal secretions are called hormones, a term derived from a Greek verb, meaning to awake or excite. They are divided by Biedl into the assimilatory and the dissimilatory hormones. The former aid in the upbuilding of the living substance in the cells, the latter in the breaking down of the living substance. Both regulate the activity of the cells.

The internal secretions, unlike the external secretions, are not formed exclusively in epithelial cells Epinephrin is produced in the chromaffin tissue which is closely related genetically with the sympathetic nervous system, and there is evidence that the internal secretion of the testicles is formed in the interstitial tissue. Little is known of the chemical constitution of hormones except that it probably varies greatly with the secretion, and may be a simple or complex body. As all internal secretions are stimulatory substances and do not furnish nutritive material to the cells they are able to exert their specific action when present in very small quantity.

The existence of an internal function of the pancreas, although not necessarily an internal secretion, has been a justifiable assumption since the discovery of von Mering and Minkowski[1] that total removal of the pancreas of dogs always produces a severe and rapidly fatal diabetes. The glycosuria reaches its maximum in two or three days, and persists even when the animal is on a diet free from carbohydrates, or when no food is given. Depancreatized dogs die within a few weeks. The symptoms resemble those of severe human diabetes, and acidosis, although not common, may develop.

After partial pancreatectomy, if more than one-tenth of the pancreas is left behind in the body, glycosuria

* Read in the Symposium on Internal Secretions in the Joint Meeting of the Sections on Practice of Medicine and Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Arch. f. exper. Path. u. Pharmakol., 1889, xxvi, 371.

may not result. Sandmeyer[2] showed that mild diabetes would gradually develop if the greater part of the pancreas was extirpated and at the same time the pancreatic ducts were tied. Lamson, Marks and myself[3] found that a rapid sclerosis and atrophy of the pancreas were produced by separating the pancreas from the duodenum after all the ducts had been tied. Later Spooner and I[4] discovered that in dogs this atrophy was associated with a diminished tolerance for carbohydrates. The limit of assimilation did not fall so low that glycosuria developed on a non-carbohydrate diet. In a hitherto unreported experiment we found that the removal of the processus lienalis and the processus uncinatus, amounting to nearly two-thirds of the entire pancreas, was followed by no lowering of the limit of assimilation for glucose. Both before and after the operation the dog could take up to 125 gm. of glucose without the appearance of sugar in the urine.

Important evidence in favor of the view that the pancreas produces an internal secretion is furnished by the results of the transplantation of pancreatic tissue. Minkowski,[5] Hédon,[6] and others have shown that if a portion of the pancreas (processus uncinatus) with its mesenteric attachment be drawn out of the abdomen and placed beneath the skin it will prevent the development of diabetes after extirpation of the remainder of the organ. The removal of the graft is promptly followed by a fatal diabetes.

The extirpation experiments would seem to offer convincing evidence that the diabetes that follows the removal of the pancreas is due to the lack of pancreatic tissue. Pflüger,[7] however, maintained that it might be the result of cutting the nerves that pass to the pancreas. He attempted to explain the prevention of diabetes by a subcutaneous graft as dependent on the presence of nerves in the mesenteric stalk running to the graft. When the mesenteric attachment was cut, lack of blood-supply caused necrosis of the transplanted piece of pancreas, and diabetes resulted. So Pflüger's claim was difficult to disprove.

In three instances reported by Hédon[6] and in one experiment of Lombroso[8] the stalk was cut without diabetes resulting. In Lombroso's animal the autopsy showed that a blood-vessel from the skin had grown into the graft. The external secretion produced in the subcutaneous graft escapes through an opening made in the skin. The absence of diabetes after the loss to the body of all the external secretion indicates that diabetes is not due to any change in the pancreatic juice. This was clearly proved in our experiments in which all the pancreatic juice was excluded from the intestine. Five of the dogs that lived from five months to two years after the operation were found at autopsy to have almost total atrophy of pancreatic tissue, so that in addition to an absence of pancreatic juice from the intestine there was little or no production of pancreatic juice in the body during a period of many months.

Martina,[9] of Greifswald, an assistant of Payr, transplanted a portion of the pancreas into the spleen. Removal of the remainder of the pancreas resulted in diabetes, but of a less severe type, it was claimed, than that seen in depancreatized dogs. The animal lived the unusually long time of three months after the onset of the diabetes. At the autopsy living pancreatic tissue was found in the spleen. Details of this experiment were not published owing to the death of this young investigator. Minkowski, the great student of experimental diabetes, at the time a professor in Greifswald, and in a position to judge of the accuracy of Martina's observation, regarded the work as furnishing important evidence against the neurogenic hypothesis and in favor of an internal secretion.

A more successful and more convincing experiment than that of Martina has been made by Murphy and myself. The greater part of the processus uncinatus of a dog was placed in the spleen. The artery which entered the distal end of this portion of the pancreas was not cut. Ten days later the remainder of the pancreas was extirpated. At this second operation the site of the transplantation into the spleen was occupied by an abscess about 4 cm. in diameter. The pus was removed and the mesenteric stalk which carried the blood-vessels to the graft was cut. We feared that all the pancreatic tissue had been destroyed by the suppurative process. The dog, however, rapidly recovered from the operation and the urine remained free from sugar. There was the usual rapid loss of weight and strength seen after excluding the pancreatic juice from the intestine. The weakness became so extreme that it was necessary to feed fresh pancreas. As a result the dog regained its strength in fair measure and lived for six months. Its tolerance for carbohydrates dropped to a low level (glycosuria followed the feeding of 40 gm. of glucose) but true diabetes did not develop.

At the autopsy, a large thick-walled abscess was found, from one side of which projected the remains of the spleen. A cone-shaped mass of fibrous tissue occupied the lower part of the spleen with its base formed by the abscess wall. On microscopic examination a small amount of pancreatic tissue was found imbedded in the fibrous tissue. The pancreatic graft was 1 cm. or less in length and 1 to 3 mm. in width. It was composed of small areas of epithelial tissue, separated by fibrous tissue which contained nerves and ganglion cells. There were distinct well-formed acini, but no structures that resembled islands of Langerhans.

No other pancreatic remains were found either attached to the duodenum or elsewhere; hence the internal function of the pancreas must have been performed by this small bit of the gland in the center of the spleen. Does not the conclusion seem justified that this small collection of pancreatic cells produced an internal secretion which prevented the development of diabetes? That this internal secretion was regulated by nervous impulses is probable and does not militate against the theory of an internal secretion. I know of no other reasonable explanation of our findings.

Pflüger quoted Hédon as saying that he would not accept the view that the pancreas produces an internal secretion, until pancreatic diabetes could be checked by administering some pancreatic product. The fact that in depancreatized dogs no diminution of the glycosuria has been produced by injecting or feeding fresh pancreas is not a valid argument against the existence of an internal secretion. The chromaffin tissue forms an internal secretion which contains a definite and well-recognized chemical substance, epinephrin, yet the administration of epinephrin or the fresh adrenal gland does not lessen the symptoms of adrenal insufficiency in Addison's disease.

2. Ztschr. f. Biol., 1894, xxxi, 12.
3. Tr. Assn. Am. Phys., 1909, xxiv, 226.
4. Arch. Int. Med., 1911, vii, 665.
5. Arch. f. exper. Path. u. Pharmakol., 1893, xxii, 271.
6. Arch. d. Physiol., 1892, iv, 617.
7. Arch. f. d. ges. Physiol., 1907, cxviii, 267.
8. Ergbn. d. Physiol., Wiesbaden, 1910, ix, 11.
9. Deutsch. med. Wchnschr., 1908, No. 1, 45.

As already stated, all attempts to obtain from the pancreas an internal secretion have failed. Spooner and myself[4] have published evidence which seems to indicate that the gland removed from the body does contain an internal secretion. A dog with atrophy of the pancreas produced by separating the gland from the duodenum was under observation for nearly three years. After the limit of assimilation for glucose had fallen to a low level fresh sheep pancreas was fed. The tolerance slowly rose to the normal and remained there for several weeks after the administration of pancreas was discontinued. It then slowly fell a second time to a low level. About a year later the tolerance was raised by feeding pig's pancreas, and it was maintained at a high point as long as the gland was fed. Two attempts to increase this dog's assimilation for glucose by feeding the gland in summer failed, possibly owing to changes in the pancreas due to decomposition, although the glands were placed in cold storage as soon as received from the abattoir.

In other dogs, in which the administration of pancreas was begun a shorter time after the onset of atrophy, the increase in tolerance has been less marked. Evidence was sought to decide whether or not the property of the pancreas to raise the tolerance was due to a thermolabile substance, but the results were inconclusive owing to the fact that this test was made in summer with pancreas that may have been inactive before it was heated.

In considering our feeding experiments it should be remembered that our dogs, unlike those of other investigators, did not have severe diabetes. When on a non-carbohydrate diet the urine was free from sugar. In depancreatized dogs it has been asserted that the absorption of fat and protein is not increased by the feeding of pancreas; but in our animals the absorption of food material was greatly improved and there was a striking gain in weight and strength.

Can the increase in the assimilation of glucose be attributed to the improved general condition of the animal? There is no evidence known to me that supports such a view. No matter how excellent is the health and nutrition of a dog, total pancreatectomy is always followed by glycosuria within from twenty-four to forty-eight hours and the output of sugar reaches a high point a few days after the operation.

As already stated, the increased tolerance had persisted at the maximum level for several weeks after the feeding of pancreas was discontinued; in one instance, it continued to rise for a short time thereafter. The view that the improved condition of nutrition favored the hypertrophy of the atrophic remains of the pancreas and that this increase in pancreatic elements explains the greater power to assimilate glucose seems untenable because the increased tolerance soon fell to a low level after the feeding of fresh pancreas was discontinued. That the pancreas fed to the dog contained an internal secretion which was absorbed from the intestine into the blood is a justifiable assumption.

The theory that there is an internal secretion essential to carbohydrate metabolism is the only one that seems to explain these findings. The results of these feeding experiments speak even more strongly against the neurogenic theory than do those of the organ-transplantations.

In the dog that lived thirty-four months with an atrophied pancreas the autopsy showed that the entire pancreas had become converted into a small thick strand of fibrous tissue, the outlines of which merged into the surrounding mesentery. The corpus pancreatis was reduced to a nodule the size of a bean. Microscopic examination of different parts of this pancreatic remains showed neither acini nor islands of Langerhans, but only scattered groups of epithelial cells interpolated between bundles of connective tissue. The main pancreatic duct, somewhat dilated, was found near the center of the sclerosed tissue. The evidence is convincing that these small groups of cells, although so changed as no longer to be recognizable as pancreatic epithelium, were able to functionate so effectively as to prevent the development of glycosuria. In four other dogs and in two cats no islands of Langerhans were found in the atrophied pancreas, but acini were easily demonstrable. None of these animals developed diabetes.

Much has been written on the islands of Langerhans and their relation to the internal secretion and to diabetes, and excellent studies have been made. The structure of the islands of Langerhans favors the view that their function is to furnish an internal secretion in diabetes and the alterations in the islands described by Opie and others point to this conclusion. Weichselbaum asserts that by use of special methods changes in the islands of Langerhans can be found in every case of diabetes. His observations and conclusions lack confirmation. Too much has been claimed by the supporters of the island theory. The incorrect statement is found repeatedly in the literature that the acini atrophy and disappear after the pancreatic ducts are tied, but the islands remain intact. The observations made in our laboratory clearly prove that both structures undergo progressive atrophy and destruction and become greatly diminished in number.

Some interrelation of the several organs of internal secretion is probable; although this is a domain rich in hypothesis it is poor in fact.

The view that the pancreas inhibits the action of epinephrin in mobilizing sugar has rested chiefly on the results of Zuelzer's[10] experiments. This investigator found that when epinephrin was mixed with pancreatic extract its power to produce glycosuria was lost. Now we know, thanks to the work of von Fürth and Schwarz, that the absence of glycosuria was not due to any inhibitory action of the pancreatic extract, but to the toxic action of the injected pancreatic extract (foreign protein) on the kidneys.

I wish to report two recent observations which seem to indicate a chemical correlation between the pancreas and two organs of internal secretion — the thyroid and the sexual glands.

In three dogs in which at the time of death chronic pancreatic insufficiency had existed from five to thirty-four months I found the thyroids so altered in microscopic appearance as to be scarcely recognizable. The size, color and consistency of the thyroids were natural, but histologic study showed either a partial or total disappearance of colloid and in its place were desquamated epithelial cells, so numerous as to fill many of the alveoli. The cells varied in size, but large ones predominated. Their nuclei took the stain deeply and uniformly.

So far as I know, this change in the thyroid has not been hitherto described. Whether it indicates a compensatory action on the part of the thyroid or is simply a degenerative change can probably be decided by extirpation of the thyroids in animals with pancreatic insufficiency in which the atrophy of the pancreas is extreme and of long duration.

Atrophy of the pancreas was induced in a female puppy about 6 months old. This animal was under

10. Berl. klin. Wchnschr., 1907, p. 474.
11. Wien. klin. Wchnschr., 1911, xxiv, 115.

observation for nearly three years after the separation of the pancreas from the duodenum. She never menstruated and the nipples and external genitalia did not develop. It seemed to be a clear case of sexual infantilism of pancreatic origin. The dog in its actions remained a puppy to the end of her life.

The association of sexual infantilism with hypofunction of the pancreas is another bond which binds the pancreas to the undoubted organs of internal secretion, the thyroid and the glandular part of hypophysis cerebri. My observation is difficult to explain in any other way than that the pancreas furnishes something to the blood which influences the development of the secondary sexual characteristics, in other words, an internal secretion.

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THE ANATOMIC AND PHYSIOLOGIC EFFECTS OF IODIN ON THE THYROID GLAND OF EXOPHTHALMIC GOITER *

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The major interest in the pathology of the exophthalmic goiter syndrome still hinges about the thyroid gland as it has done in an indefinite manner since 1840 and in a specific way since Gauthier and Möbius in 1886 and 1887 advanced the hypothesis that the symptom-complex was dependent on hyperactivity of the thyroid gland with a resultant thyroid intoxication.

But, notwithstanding the large amount of study and experiment that has been directed to this subject during the past twenty-five years, the thyroid hypothesis of the etiology of the exophthalmic goiter syndrome still remains an hypothesis.

In recent years the clinical evidence, especially that of surgical therapy, tends to support the thyroid hypothesis, while at the same time the evidence from pathologic anatomy, chemistry and pathologic physiology rather suggests that the thyroid does not play a primary rôle in the production of the symptom-complex.

I. ANATOMIC CHANGES IN THE THYROID

From the standpoint of pathologic anatomy the changes are body-wide and highly variable. The most striking and most constant are those of the lymphoid and thyroid tissues.

Confining ourselves to the thyroid changes, widely different views have been expressed as to their significance. Thus Virchow,[1] summarizing the literature to 1863, stated that there "was neither a distinct variety nor a distinct size nor yet a distinct stage of goiter associated with the symptom-complex," and concluded that such changes could not be considered as causal or primary.

Beginning particularly with the development of the thyroid hypothesis of Gauthier and Möbius and the operative treatment of exophthalmic goiter, the thyroid changes were more extensively studied and the trend of opinion favored the view that the morphologic changes were constant and characteristic. Thus the published studies of Greenfield,[2] Haemig,[3] Farner,[4] Lewis,[5] Ewing,[6] Wilson[7] and many others strongly supported such a view.

On the other hand, the studies of Virchow,[1] A. Kocher,[8] Reinbach,[9] Brissaud,[10] MacCallum,[11] and Simmonds[12] have shown a wide range of morphologic changes in the thyroid.

My own experience during the last seven years includes careful anatomic examinations of 137 operative and autopsy specimens of the thyroid from patients with exophthalmic goiter. The results of part of this series have already been published,[13] and those still unpublished will not materially alter the proportion or types of changes then noted. I found that the symptom-complex as at present diagnosed was not associated with either constant or characteristic changes in the thyroid, although in about three-fifths of all cases some degree of active hyperplasia was present at the time of removal.

Thus, as larger series of cases have become available for study, opinion is again returning to the view of Virchow, that the symptom-complex may be present with the thyroid in any anatomic state—normal, actively hyperplastic, colloid, in glands the seat of tumors, benign or malignant, or with high degrees of atrophy. These changes, as has long been known, are those common to goiter in general, irrespective of their clinical association but with this difference that the proportion of glands showing active hyperplasia (developing goiter) at the time of operation is at present higher in a series of exophthalmic goiters than in ordinary goiter.

II. IODIN CONTENT OF THE THYROID

Turning to the iodin contents of thyroids in relation to goiter formation, it is now established that the iodin content varies with the amount of visible colloid and inversely with the degree of active epithelial hyperplasia. This relation has been found constant for all mammalian thyroids thus far studied.

The effect of iodin on active thyroid hyperplasia has also been studied in some detail and in all the so-called simple hyperplasias of man and the lower animals it has been found that following the administration of iodin there is a rapid storage of iodin in the thyroid in association with the accumulation of colloid and a progressive involution (throughout three to five weeks) of the active hyperplasia to its colloid or resting stage.

With these facts concerning the iodin relations established for simple thyroid hyperplasia (goiter) and with the anatomic similarity of the hyperplasia found in exophthalmic goiter with that occurring spontaneously in simple goiter or in experimentally induced hyperplasia, it is of importance to ascertain whether iodin induces the same effects on the hyperplasia of exophthalmic goiter. Clinically both good and bad results have followed the use of iodin in exophthalmic goiter and it is still the prevailing opinion that iodin should not be used in this disease, although clinicians generally have noticed a reduction in the size of the thyroid following

* Read in the Symposium on Internal Secretions in the Sections on Practice of Medicine and Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Virchow: Die krankhafte Geschwülste, 1863, iii, 74.
2. Greenfield: Brit. Med. Jour., 1897, ii, 1261.
3. Haemig: Arch. f. klin. Chir., 1897, lv, 1.
4. Farner: Virchows Arch. f. path. Anat., 1896, cxliii, 509.
5. Lewis: Surg., Gynec. and Obst., 1906, iii, 477.
6. Ewing: Tr. Assn. Am. Phys., 1906, xxi, 507.
7. Wilson: Am. Jour. Med. Sc., 1908, cxxxvi, 851.
8. Kocher, A.: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1902, ix, 1; Arch. f. klin. Chir., 1910, xcii, 442; Virchow's Arch. f. path. Anat., 1912, ccviii, 86.
9. Reinbach: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1901, viii, 247.
10. Brissaud: Semaine méd., 1895, xv, 326.
11. MacCallum: THE JOURNAL A. M. A., Oct. 5, 1907, p. 1158.
12. Simmonds: Deutsch. med. Wchnschr., 1911, xxxvii, 2164.
13. Marine and Lenhart: Arch. Int. Med., 1911, viii, 265.

its use. While individual cases, in which the histologic structure and the iodin content of the gland have been examined following the administration of iodin, have from time to time been reported by Oswald[14] and others, it has only been during the last two or three years that this question has received extended investigation. Thus A. Kocher[15] reported a series of 160 thyroid examinations and in those known to have received iodin he found that there had been a definite storage of iodin in the thyroid and that this accumulation of iodin was associated with an involution of the active hyperplasia. It was on the basis of this finding that Theodore Kocher introduced the hypothesis of active and inactive iodin in the thyroid as an attempt to explain the well-known clinical observation that the highest iodin contents were usually found in the milder cases.

Last year Lenhart and I[13] reported our observations on the effect of feeding iodin, on the iodin content and histologic structure in a series of fifteen cases of undoubted exophthalmic goiter. Our findings were similar to those of Kocher, that a rapid storage of iodin in the gland takes place and an involution of the hyperplasia to the colloid state results.

Thus the thyroid hyperplasia of exophthalmic goiter behaves toward iodin exactly as does any other thyroid hyperplasia of any animal thus far investigated and one can with certainty conclude that physiologically as well as anatomically there is as yet no known attribute of the thyroid of exophthalmic goiter that may not be shared by the thyroid overgrowth of any other clinical association.

III. EFFECT OF THE ADMINISTRATION OF THYROID

Another series of experiments that have been the obvious though natural outcome of the Gauthier-Möbius hypothesis of the thyroid origin of exophthalmic goiter are those in which the effects of extracts of thyroid, or desiccated thyroid from exophthalmic goiter, on normal animals, on cretin or myxedematous animals, and lastly on exophthalmic goiter patients themselves have been studied.

To review briefly the development of this phase of the subject: It had been observed from the beginning of thyroid opotherapy that patients with exophthalmic goiter were relatively more affected than were patients with ordinary goiter, and clinically this reaction was an exaggeration of the existing symptom-complex. Ballet and Enriquez[16] had reported the experimental reproduction of the exophthalmic goiter symptom-complex in dogs by the use of large amounts of desiccated thyroid, and Notthaft[17] had observed the development of the symptom-complex in a normal individual following the use of excessive amounts of desiccated thyroid. All these observations were interpreted as proof of the Gauthier-Möbius hypothesis.

On the other hand, the more extensive experimental observations which followed this new suggestion have not confirmed the earlier views. Thus Cunningham[18] failed to produce in birds or mammals any symptom-complex resembling exophthalmic goiter. In our feeding experiments on dogs we were unable to produce any noteworthy rise in the temperature or pulse-rate or to bring about thyroid enlargement or exophthalmos by feeding thyroid either fresh or dry. The effect of thyroid substance was in general proportional to the iodin content, and Stoland[19] has recently reported similar results from the use of normal and hyperplastic dog thyroids on rats and guinea-pigs.

The latest extensive work is that reported by Carlson, Rooks and McKie,[20] who likewise have been unable to reproduce any symptom-complex resembling exophthalmic goiter. All the recorded observations, whether interpreted positively or negatively, have shown essentially identical pharmacologic reactions for the thyroid substance—increased appetite, loss of body weight, diarrhea, increase in the nitrogen and carbon dioxid output and oxygen consumption—and the different conclusions reached seem to be dependent on the interpretations placed on this common pharmacologic reaction.

Since iodin has been found to have such an intimate relation to the physiologic activity of the thyroid, and since large doses of iodin have long been known to exaggerate the symptom-complex in certain types of exophthalmic goiter, this element also has been advanced as an etiologic factor in exophthalmic goiter, and Kocher has introduced the term "iodin-Basedow" in this connection. Kocher,[21] Goldflam,[22] Cerioli[23] and others have reported cases in which an existing symptom-complex was exaggerated and also cases in which the symptom-complex was initiated by the excessive use of iodin. But here, as in the thyroid feeding experiments, extensive experimental investigation has revealed a common pharmacologic and toxicologic action for iodin in all forms of thyroid hyperplasia and the different conclusions are dependent on the different interpretations that have been placed on this common action.

Turning to the experiments with exophthalmic goiter thyroid, Soupault[24] found that feeding such gland to guinea-pigs produced less evidence of physiologic activity than did normal human or sheep thyroid. Hutchison[25] also fed the thyroid proteins of exophthalmic goiter glands to patients and later used extracts experimentally on dogs with negative results. Gley and Cleret[26] injected intravenously into dogs and rabbits serums obtained from six patients with exophthalmic goiter, but observed no changes in the blood-pressure or pulse-rate. Gley[27] used fresh extracts of thyroids from patients with exophthalmic goiter, simple goiter, thyroid cyst fluid and ox thyroids injected intravenously into dogs in doses of 0.5 gm. per kilogram. He found, as others had found, that all thyroid extracts tend to cause a slight fall of blood-pressure and was unable to make out any difference between the action of exophthalmic goiter extracts and those of ordinary goiter. The normal ox thyroid extracts induced about twice the effect on the circulation that like amounts of exophthalmic goiter extracts did. Schoenborn[28] had two years before used fresh normal salt solution-glycerin extracts of seven exophthalmic goiters, three ordinary goiters and twenty-three thyroid tumors. He used these extracts intravenously in cats and rabbits and came to the conclusion that there was no essential difference in the cardiovascular action of the thyroid juice dependent on clinical association, but that the slight differences noted were due to

14. Oswald: Virchows Arch. f. path. Anat., 1902, clxix, 453.
15. Kocher, A.: Arch. f. klin. Chir., 1910, xcii, 442.
16. Ballet and Enriquez: Semaine méd, 1894, xiv, 66.
17. Notthaft: Centralbl. f. inn. Med., 1898, xix, 353.
18. Cunningham: Jour. Exper. Med., 1898, iii, 147.
19. Stoland: Am. Jour. Physiol., 1912, xxx, 37.
20. Carlson, Rooks and McKie: Am. Jour. Physiol., 1912, xxx, 129.
21. Kocher: Arch. f. klin. Chir., 1910, xcii, 1166.
22. Goldflam: Berl. klin. Wchnschr., 1911, xlviii, 423.
23. Cerioli: Policlinico, Rome, 1909, xvi, sez. prat., 527.
24. Soupault: Rev. de Neurol., 1897, p. 630.
25. Hutchison: Brit. Med. Jour., 1896, ii, 896.
26. Gley and Cleret: Jour. de physiol. et de path. gén., 1911, xiii, 928.
27. Gley: Jour. de physiol. et de path. gén., 1911, p. 955.
28. Schoenborn: Arch. f. exper. Path. u. Pharmakol., 1909, lx, 390.

differences in the amount of iodized thyreoglobulin, as von Cyon and Oswald[29] had found.

Recently Klose[30] and Lampe, Liesegang and Klose[31] have repeated some of this work and have arrived at opposite conclusions. They urge as objections to all previous work that the exophthalmic goiter thyroid extracts must be fresh (from twenty to thirty minutes after operative removal from the patient) and that one must use susceptible animals which in their experience are to be found in nervous, irritable fox-terrier dogs. They were able to reproduce a pulse and temperature reaction lasting from two to six days in some ways similar to the postoperative pulse and temperature reaction in exophthalmic goiter. Their conclusion is the more striking when they state that the toxic principle is present only in the freshest gland and then, without any knowledge of the iodin content of the glands with which they worked, they believe the toxicity is dependent on a masked and abnormal iodin combination which they designate as "Basedow-iodin" because potassium iodid and sodium iodid introduced intravenously in large doses produced, in their hands, a somewhat similar temperature and pulse reaction and even the so-called Basedow blood-picture.[32]

Baruch[33] has reported the production of exophthalmos, tachycardia, glycosuria and lymphocytosis in dogs, rabbits and rats by injecting whole-gland emulsions into the peritoneal cavity in from 5 to 20 c.c. doses. His results differ from those of Klose in that he was able to reproduce the clinical picture of exophthalmic goiter with extracts of several clinical types of goiter in young bitches irrespective of their nervous temperament.

Another series of observations bearing on the same phase were those reported by Fonio[34] from Kocher's clinic. Fonio studied the effects of exophthalmic goiter thyroid preparations on the nitrogen metabolism and the blood-picture of myxedema patients with the object of finding out whether exophthalmic goiter thyroids were therapeutically more active than ordinary thyroid. He concludes that exophthalmic goiter thyroid is no more potent than other thyroid preparations of like iodin content or, in other words, that the activity varies with the iodin content.

During the past year, in Dr. Hoover's clinic at the Lakeside Hospital, we have made some observations bearing on this same question, but from another angle. We have fed desiccated exophthalmic goiter thyroid to patients with the complete exophthalmic goiter syndrome, in from 0.5 to 1.0 gm. doses daily for from ten to fifteen days, both with and without the use of iodin in addition. These thyroid preparations were low in iodin, varying from 0.01 to 0.03 per cent. In two patients the gradual fall in the pulse-rate due to rest continued throughout the experiment, while a third patient, who was getting 1 gm. of desiccated exophthalmic goiter thyroid daily and 0.7 c.c. syrup of ferrous iodid three times daily, showed no appreciable difference in the average pulse-rate at the beginning and at the end of the eleven days' feeding. We have also used normal desiccated sheep's thyroid in about one-third the above doses in typical cases of exophthalmic goiter observed at the Lakeside Hospital Dispensary and in such cases it is well known that one usually gets in the course of a week's feeding a definite increase in the pulse-rate if there has been a definite increase in the total metabolism with a loss of body weight. One may therefore conclude that the effect of exophthalmic goiter thyroid when fed to patients with the exophthalmic goiter syndrome varies with the iodin content, and in this respect is similar to like preparations of other clinical associations.

29. Von Cyon and Oswald: Arch. f. d. ges. Physiol. (Pflüger's), 1901, lxxxiii, 199.
30. Klose: Arch. f. klin. Chir., 1911, xcv, 649.
31. Lampe, Liesegang and Klose: Beitr. z. klin. Chir., 1912, lxxvii, 601.
32. Bardenhewer (Arch. f. klin. Chir., 1912, xcvii, 729) has repeated Klose's experiments with potassium iodid and sodium iodid, and in six dogs he was unable to obtain any reaction comparable to those reported by Klose. That is, he found no noteworthy change in the pulse-rate or temperature, no albuminuria or glycosuria, no tremor or sweating or exophthalmos as reported by Klose. Klose in a short reply to this work (ibid., p. 829) states that these experiments do not repeat his because Bardenhewer did not use the nervous, excitable fox-terriers which Klose claims are absolutely essential.
33. Baruch: Zentralbl. f. Chir., 1912, xxxix. 316; 1911, No. 35.
34. Fonio: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1911, xxiv, 123.

SUMMARY

1. Neither specific nor constant anatomic changes in the thyroid of exophthalmic goiter have as yet been demonstrated.

2. The iodin content, the storage of iodin in the gland and the involution of active hyperplasia by the use of iodin are, so far as is at present known, identical with those iodin relations common to other clinical associations.

3. The thyroid of exophthalmic goiter has no different pharmacologic action on animals or therapeutic action on myxedema or toxic action on patients with exophthalmic goiter than thyroid preparations of other clinical associations with like iodin contents.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. PRATT, MARINE AND MACCALLUM

DR. CHARLES H. MAYO, Rochester, Minn.: If we are to believe Dr. Marine's statement there is no real reason for operating on the thyroid, as we now do, except to obtain the indirect effects of the operation. Why should a patient with exophthalmic goiter be relieved by an operation on the thyroid? That is the question which naturally arises. The bulk of the 137 cases practically all came from Dr. Crile's clinic. Dr. Crile is interested in experimental physiologic and clinic work, as well as is Dr. Marine, and yet he is satisfied with his results from the clinical standpoint. His patients are also satisfied and most of his new patients come to him because urged to do so by patients previously operated on. If Dr. Marine is correct, our present knowledge of exophthalmic goiter would lead us to believe that there is no real change in the gland and that pathologists the world over have been mistaken in their interpretation of the cell-increase. Dr. Marine's opinion is based on experience in comparative pathology of the thyroid gland and a small experience in thyroid disease in the human. His observations lead him to an opinion which is not supported by the surgeons of the present day.

DR. H. S. PLUMMER, Rochester, Minn.: Dr. Marine has done excellent work on the thyroid. My observations, however, do not confirm his conclusions, i. e., that the anatomic changes in the thyroid in cases of exophthalmic goiter are neither constant nor specific. We have known for several years that hyperplasia of the thyroid is present in most cases having a well-developed clinical complex of Graves' disease; that marked hyperplasia is seldom noted in the thyroid except in cases having Graves' disease, and that exophthalmos is but rarely associated with any type of goiter except the hyperplastic. In each year of our series, in fact, in all reported series, there have been sufficient exceptions to the above rules to cause doubt in definitely associating the toxic symptoms, exophthalmos and hyperplasia of the thyroid. In going over my statistics for the last five consecutive years I find that exceptions to the above rules have gradually diminished. This has come about from a clearer conception of the clinical pic-

tures that may accompany hyperplasia and "simple goiter" (adenoma and diffuse colloid).

The statistics of operation at the Mayo clinic seem to warrant these conclusions: (1) that hyperplasia of the thyroid never exists without a production of thyroid secretion in excess of the demands of the individual; (2) that exophthalmic goiter is a clinical entity associated with a definite pathologic process in the thyroid; (3) that, if hyperplasia of the thyroid is of a sufficient degree or extends over a long enough period, exophthalmos is almost sure to develop; (4) that no matter how intense the intoxication from an adenomatous or colloid goiter not associated with hyperplasia, exophthalmos will not develop. Patients having simple goiter noticed the goiter at the average of 22.8 years, the evidence of intoxication at 36.6 years, and came to operation at 39.6 years. That a patient 23 years of age having an adenoma has a definite fixed chance of developing thyrotoxicosis during her thirty-seventh year and that the symptoms may so closely resemble the clinical complex of Graves' disease that the two cannot be distinguished is one of the strongest arguments in favor of the latter disease being directly due to a disturbance of the function of the thyroid.

DR. G. W. MCCASKEY, Ft. Wayne, Ind.: The tremendous importance of the internal secretions has not yet been fully recognized by the medical profession. With regard to the results of the implantation of such a minute fragment of pancreas in the spleen, the question naturally arises whether the secretions might not have been due to an accessory pancreas somewhere along the gastro-intestinal tract. In spite of what Dr. Marine and others have said, the primary rôle of the thyroid in exophthalmic goiter appears to me to be established. I want especially, however, to speak of the probable rôle which the internal secretions play in immunity processes. Sir A. E. Wright says that while we do not know the precise point of origin of the immune bodies, we should consider every chemical compound in the body which has to do with the cure of disease as derived from internal secretions. Probably Wright used this term in a very broad sense, a sense which Dr. Meltzer apparently does not approve, as, for instance, the internal secretion of a single cell. In this broad sense it would include, for instance, chemical bodies elaborated by isolated cells, such as the leukocytes. As to the rôle of the thyroid in the immunity processes: in the acute infections it has been found by Roger that the thyroid gland is almost invariably increased in size. The normal gland is said to weigh about 25 gm.; in measles, typhoid, etc., the gland weighs 30 to 70 gm. The histologic change giving rise to the enlargement is that of a compensatory hypertrophy. It seems probable indeed that such an enlargement of the thyroid occurs in every acute infection. I recently had a case under observation, which, to my mind, points to the possibility of the thyroid playing a similar rôle in the early stages of chronic affections.

It seems to me quite possible that in the early stages of chronic infections, as well as in all acute infections, the thyroid and perhaps other glands, as well as isolated cells with dual functions, play a definite rôle. This would be in line with what Wright said, and I believe it is in this direction that we should look for the source of the immune bodies.

DR. LOUIS B. WILSON, Rochester, Minn.: We have come so definitely to a realization of the direct relationship between morbid anatomy of the thyroid and symptoms of thyrotoxicosis in our clinic, that the clinician can now prophesy in above 95 per cent. of his cases, before the patient is operated on, the presence or absence of hyperplasia. And the pathologist, without any knowledge whatever of the clinical symptoms, can, in above 85 per cent. of the patients having hyperplasia, tell from his examination of the thyroid what was the clinical stage of the case. If this is only guessing, it is mighty good guessing. The difficulty most men have encountered in attempting to explain the relationship of the morbid anatomy of the thyroid to the symptoms in exophthalmic goiter has come from their supposing that what is found in the gland is the thing that is doing the work in the body. There is an internal secretion in the gland, but when it stays in the gland it is doing nothing. It is only when it gets out of the gland that it does something. If we once get that fixed in our minds it will help us to explain the questioned relationship. Drs. Blackford and Sanford, working in our laboratory at Rochester, have recently repeated and materially extended Gley's experiments. They have shown that when such a tolerance has been established by two or three injections of a given gland, as the thyroid, there is no tolerance established to injections of the same animal with extracts from another gland with known depressor qualities. They are now utilizing this new and apparently very important reaction in an extensive study of the relationships of the thyroid to other glands of supposed internal secretion. This field of investigation promises to be a very fruitful one. Its practical bearing can be appreciated, for example, in this, that the depressor action of extract of patients with exophthalmic goiter is very much greater than the depressor action from the extract of a simple thyroid. Since, however, the colloid goiter contains much more iodin than the exophthalmic gland, it would seem that the iodin, quite contrary to Dr. Marine's contention, instead of being a factor in the production of the depressor symptoms, has really nothing to do with the case.

DR. J. H. PRATT, Boston: Dr. McCaskey said that the results obtained in the transplanted pancreas experiments might have been due to an accessory gland. If an accessory pancreas had been present this might have been true, but I stated in my paper that careful search at the autopsy failed to reveal any pancreatic tissue except the transplant in the spleen.

DR. DAVID MARINE, Cleveland: From what we at present know of the thyroid and its physiology, it seems that the popular explanation of the good results from surgical treatment is inadequate; that is, there are more facts known than such a view would include. Dr. Plummer has stated in substance that in all their cases there was active hyperplasia; that may be true, because the presence of an active hyperplasia at the time of operation would rather indicate the stage of the disease than that all cases of exophthalmic goiter coming to operation have active hyperplasia as he seems to think. The active hyperplasia of the thyroid in exophthalmic goiter is histologically identical with the active hyperplasia of other clinical associations or of other animals, and I do not believe that any one can distinguish essential differences between a hyperplasia of the piscine thyroid and a hyperplasia of the human thyroid. It has long been known that all developing goiters are actively hyperplastic. In about 90 per cent. of cretins there is thyroid overgrowth, and in the developmental or actively hyperplastic stage of this overgrowth it is indistinguishable so far as we have been able to observe it in children, lambs, calves, pups and fish from the active hyperplasia of exophthalmic goiter. About three-fifths of our cases of exophthalmic goiter showed active hyperplasia, but of varying degrees, from the earliest change to the marked hyperplasia, and the pure colloid phase was several times observed in cases with the classical syndrome. Therefore, I do not believe that there is either a constant type of active hyperplasia or that active hyperplasia is constantly associated with the symptom-complex. In children, at puberty, in many infectious diseases and in malnutritions the thyroid may undergo hyperplasia, which is indistinguishable histologically from the hyperplasias of other clinical associations. The experimental compensatory thyroid hyperplasia produced in dogs is likewise indistinguishable from the hyperplasia of exophthalmic goiter.

In the cases I have seen I think it would have been impossible to prognosticate the clinical symptoms from the anatomic state of the thyroid, and vice versa, and in the reports of Kocher, MacCallum, Simmonds and others there have been a great variety of pathologic conditions present—tumors, benign and malignant, all degrees of active hyperplasia and pure colloid glands.

DR. W. G. MACCALLUM, New York: I support what Dr. Marine has said about the conditions in exophthalmic goiter. I have already expressed the opinion that the changes in the thyroid are probably secondary in character, although we do not know the primary cause of the disease. I can agree that one rather frequently sees instances in which the changes in the thyroid are by no means characteristic. The occurrence

of anatomically similar changes in the thyroid of animals without any symptoms of exophthalmic goiter supports this view, and gives one the impression that the thyroid is changing in response to some alteration external to it.

I was somewhat disappointed not to hear more discussion of the part played by the islands of Langerhans in diabetes, and would call attention once more to a case described by me in which the ligated and degenerated portion of the pancreas maintained carbohydrate metabolism. It was found that this film of atrophied pancreas contained what appeared to be nothing but islands of Langerhans. More recently, in a similar experiment in a guinea-pig, it was demonstrated that these islands are really islands of Langerhans.

NEWER METHODS OF DIAGNOSIS OF PATHOLOGIC CONDITIONS OF THE LIVER*

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Until recently the doctor and the liver have been comparative strangers. This all-important organ, in its clam-like shyness, has presented only its size, position and delicate anterior border for examination. The question, is the liver diseased, could only be answered in a most general way by our inability to reconcile a chain of symptoms with the determined conditions of other organs. I believe I speak conservatively when I say the greatest need of clinical medicine and surgery is simple and exact methods of determining the presence of pathologic conditions in the liver and pancreas and a knowledge of the functional activities of these organs.

I present here in the simplest and most direct manner the technic of two tests of liver function and their theoretic and practical interpretation. They have for some time been in routine use by the Neisser clinic in Vienna, where I have had ample opportunity to demonstrate their great practical value. German literature abounds in allusions to these tests and one begins to see references to them in American medical literature, but as yet they are here comparatively unknown and unused.

I. THE UROBILINOGEN TEST

History.—Jaffé first discovered urobilin in pathologic urine, described its fluorescence with zinc salts, its spectroscopic lines and showed it to be an oxidation product of a mother-substance urobilinogen. Müller proved both these substances to be derivatives of bile-coloring matters, under the action of bacteria in the intestines. Then the indefatigable Ehrlich,[1] in 1901, discovered that para-di-methyl-amino-benzaldehyd gave on standing with some urines a cherry or rose-red coloration. He was less fortunate than in the case of his diazo-reaction in being unable to discover the cause. Pappenheim, in 1903, first noted that the reaction was commonly present when urobilin was abundant in the urine and Neubauer,[2] in the same year, demonstrated that the Ehrlich reaction was due to urobilinogen.

Method.—The test is known as "Ehrlich's aldehyd test," or as the "urobilinogen test"[3] A stock solution is made with para-di-methyl-amino-benzaldehyd, 4 gm., or 2 per cent.; hydrochloric acid, 40 gm., or 20 per cent.; water and a few drops of alcohol to 200 c.c. One or two drops of this solution are added to 5 c.c. of fresh urine. In the presence of urobilinogen there develops, usually in the first few minutes, a rose-red color. Exceptionally, the extreme depth of color is not reached until one-half to two hours have elapsed. The reaction is somewhat more common in dark than in light colored urines. In a dark, bile-laden urine bile pigments obscure the test. The urine with the reagent is then shaken with a few drops of chloroform, when the red color appears in the chloroform at the bottom of the test-tube.

Theoretical Consideration.—Neubauer states that the reaction is due to pyrrol derivatives. The cherry pigment produced before the spectroscope gives absorption bands between Frauenhofer's lines D and E. Ehrlich and Pröscher[4] state it is an aldehyd reaction, although it is not given and even prevented by formaldehyd and all simple aldehyds. They give the probable reaction:

$$C_6H_4\begin{cases}N(CH_3)_2\\ CHO\end{cases}+H_2X=C_6H_4\begin{cases}N(CH_3)_2\\ CH=X\end{cases}+H_2O$$

Many normal urines react to this test on boiling, when the color is usually more yellowish than is a cold reaction, as the hue depends somewhat on the action of the hot hydrochloric acid. The presence of $C_8H_{12}N$ (hemopyrrol) in the urine is the agent which reacts at boiling temperature to give the color. Urobilinogen is the only known substance present in urine which reacts to the cold reagent to produce the cherry color. Ehrlich discovered only one medicine — antipyrin, the administration of which would increase this reaction in the urine to a very moderate degree. The following may roughly express relations:

Bile-coloring matters — (Bilirubin and Biliverdin) + H_2O + H = Urobilinogen.
Urobilinogen + O = Urobilin.

Gall-stones of the ox,[5] containing large quantities of biliverdin, may be reduced by sodium amalgam to a mixed solution of urobilin and urobilinogen. The solution then gives the aldehyd reaction.

Urobilin formation is a complicated chemical change involving pyrrol derivatives. When the end of this process is reached is uncertain, so that a pure product cannot be obtained from a complex mixture like urine. It appears probable that urobilinogens from different origins and formed under differing conditions may be different in chemical composition, though spectroscopically identical.

A urine containing urobilinogen on standing in the air and sun will soon lose its urobilinogen by oxidation to urobilin and give no pink color with the aldehyd reagent. Such a fresh urine loses its reaction immediately on adding hydrogen peroxid through rapid oxidation. Urobilinogen can be preserved in urine for some time by keeping it in tightly stoppered, dark, glass bottles.

Städeler and Maly[6] have shown that bilirubin can be reduced to a crystalline substance, hemibilirubin, which gives all the reactions of urobilinogen and by decomposition results in a coloring matter with all the chemical and spectroscopic urobilin reactions. This identical substance can be extracted from alkalinized urine by shaking with chloroform. Hemibilirubin crystallizes in unstable monoclinic prisms. It reacts to Ehrlich's aldehyd test in dilution of 1:640,000, and after standing reacts to alcoholic zinc acetate solution with fluorescence in a dilution of 1:1,280,000. This substance can be extracted from all urines, even those giving no visible

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* Chairman's Address, Section on Pathology, State Medical Association of Texas, Waco, May 8, 1912.

1. Ehrlich: Med. Woche, 1901, No. 15.
2. Neubauer: Sitzungsbericht der Gesellschaft für Morphologie und Physiologie in München, July, 1903, ii.
3. Berghausen: THE JOURNAL A. M. A., Jan. 8, 1910, p. 99.
4. Pröscher: Ztschr. f. physiol. Chem., xxxi, 520.
5. Zentralbl. f. inn. Med., 1905, No. 34, p. 836.
6. München. med. Wchnschr., 1912, No. 15, p. 799.

aldehyd reaction. This absence of the reactions in normal urines is due, it is surmised, to either extreme dilution or the presence of inhibiting agents, chief of which are probably the bile acids.

Fischer and Meyer-Betz[6] have recently shown that the administration of large quantities of bile by the mouth is followed in those with sound livers by a slightly increased physiologic rose-red aldehyd reaction in the urine, and in those with diseased livers by an intense pathologic deep-red urinary reaction. Similar results follow the administration of hemibilirubin.

For years it was taught that urobilin was the agent giving the yellow color to urine. This is now known to be urochrome, urobilin being brown in color. A fresh stool is light in color; its alcoholic extract contains urobilinogen. On standing the outer surface of the stool becomes darker brown from oxidation, in part by the oxidation of urobilinogen to urobilin. The stools of infants and children are uniformly lighter than those of adults, probably because of comparative scarcity of oxidizing bacterial flora.

Physiologic Origin of Urobilinogen.—The result of years of discussion by chemists and physiologists may be summed up by saying that no practical amount of urobilinogen is ever formed in the body except by transformation of bile in the intestines, largely by the action of bacteria. Blood-clots, hematomas, bowel hemorrhages and hematoporphyrin do not give a urobilinogen reaction to the urine. Through the portal vein the liver is constantly receiving blood containing products of digestion, bile-coloring matters, urobilinogen and urobilin. The normal liver cells retain the bile-coloring matters, reconvert the urobilin and urobilinogen and retain these as bile-coloring matters. Urobilinogen in the urine must appear from two causes:

1. Impaired liver cells, which have failed to stop, or transform the urobilinogen coming to them through the portal vein from the bowels and which allow its entrance into the general circulation.

2. Congestive circulatory influences, by which the urobilinogen-laden blood normally passing through the liver is deflected into the collateral circulation of the portal system—as through the hemorrhoidal veins to the iliac veins in constipation, or to the general circulation through a *caput medusæ* in advanced hepatic cirrhosis.

Animal experimentation shows the following changes in the urobilinogen content of the urine when the common bile duct is tied in the dog:

1. On the first day urobilinogen appears in the urine.

2. On the second day the conjunctivæ are icteric, and urobilinogen and bile are found in urine.

3. On the third day the dog is totally yellow; bile is abundant in the urine, but the urobilinogen is greatly diminished.

4. On the fourth day the urine is loaded with bile, but contains no urobilinogen.

Urobilinogen in the Healthy.—Animal experimentation and clinical experience lead to the acceptance of the following facts:

1. Normal liver cells never let an appreciable quantity of urobilinogen pass into the blood of the general circulation.

2. A very slight loss of normal liver function, even in a part of the liver, is followed by the appearance of a pathologic amount of urobilinogen in the urine. The test is a very delicate one and is not a measure of the gravity of the pathologic condition, but it enables one to answer whether or not the liver is functionating in an absolutely normal manner.

3. Urines from healthy individuals often give a slight pinkish reaction, which is not pathologic. The test is only positive when the color is a deep cherry or rose-red. The presence of such small quantities of urobilinogen in the urine is for the most part explained by constipation and resulting congestion and escape of some of the blood of the portal system through its collateral circulation. Such physiologic amounts of urobilinogen usually entirely disappear on free purgation. Thus no final diagnosis of impaired liver function is justified except after a free saline purge.

Urobilinogen in the Diseased.—In all diseases of the liver and in infections of the bile passages which have reached the liver, or in the presence of obstructions which have backed up the bile the urobilinogen in the urine is increased and constantly present in more than physiologic amounts and gives to the aldehyd reaction, not the physiologic faint rose-red hue, but a deep red coloration.

When the common bile duct is suddenly occluded, the action of the liver cells is rapidly impaired by the back pressure. The bile already in the bowel comes to the liver in part as urobilinogen, which is passed by the impaired hepatic cells to the general circulation and appears in the urine for about three days. As the bile in the intestines is exhausted, less urobilinogen comes to the liver and gradually disappears from the urine. The patient may be deeply jaundiced at this time, but with a negative urobilinogen test. The reaction thus may be made to indicate a rapid and complete closure of the common or hepatic ducts. If the obstructing agent after a time allows bile to flow into the intestine, even for a short period, urobilinogen appears in the urine. Intermittent opening and closing of the common duct has in this way been repeatedly demonstrated.

The detection of the presence of bile-pigments in the stools is of little significance. These pigments are nearly always present in the stools of those with the deepest obstructive jaundice; indeed, the intestinal mucosa is often stained deep yellow. Bile is also introduced through the bile-stained pancreatic secretion, about three pints of which are poured into the intestines in twenty-four hours.

Urobilinogen may be absent from the urine in the terminal stages of cirrhosis and syphilis of the liver, when the bile is so altered as to contain almost no biliary-coloring matters. Such a condition has been observed before death in severe phosphorus poisoning accompanied by almost complete fatty degeneration of the liver.

This aldehyd test is one of the greatest aids in the diagnosis of complicated kidney, liver and heart diseases accompanied by ascites. If these three organs are in question, we administer digitalis. If urobilinogen and albumin diminish in the urine, that is, if the liver and kidney conditions improve, the primary trouble is indicated in the heart. If the urobilinogen remains unaltered in quantity and the albumin becomes less, the liver is indicated as the principal causative agent. If the urobilinogen diminishes and the albumin and casts are unaltered, the kidney is probably primarily diseased. This principle, while in practice sometimes obscured, offers in many instances invaluable assistance in diagnosis.

Urobilinogen appears in the urine with the beginning of parenchymatous liver degeneration in the advanced

stages of all infectious diseases and intoxications.[7] The approach of this point can be noted by testing the urine for urobilinogen in pneumonia, typhoid, scarlet fever, tuberculosis, septicemia, rheumatism, pleurisy, myocarditis, pulmonary congestions, etc. The appearance of urobilinogen in pathologic amounts marks the oncoming of greatly increased toxemia and reduced resistance.

This test has cleared up the diagnosis of many obscure cases of sallow, subicteric individuals. Their skins continually look as though they were slightly jaundiced, and they are rarely cleared by any purgation; one feels sure that their urines contain bile, but none is ever found. The aldehyd test will often show this condition to be accompanied by large amounts of urobilinogen in the urine. The French term this brown discoloration of the skin a "urobilin cirrhosis." The condition of the liver is usually one of subacute irritation and cellular degeneration from absorption of toxins from the bowel or diseased bile passages. Old cases of this subicterus, in which the patients suddenly become very yellow and in which urobilinogen is absent in the urine, usually present carcinomatous obstructions developing at the points of chronic irritation.

Stones in the gall-bladder or common duct produce a greater or less degree of urobilinogenuria, in the measure as they impair the hepatic cells by toxic products of inflammation, ascending infection, or back pressure of bile.

Catarrhal jaundice[8] is marked by the appearance in the urine of large amounts of urobilinogen several days before jaundice or much fever appears, which shows it to be not a mere inflammation of the bile passages but a true hepatitis.

II. THE GALACTOSE TEST

Recently the power of the healthy liver to store carbohydrates and the diminution of this power in diseased livers has been attempted to be utilized for diagnostic purposes.

History of Sugar Tests.—The first test suggested was the dextrose test. The normal liver can store about 200 gm. of cane-sugar. The test was applied by giving 100 gm. of cane sugar in tea, and if sugar afterward appeared in the urine, detectable by Fehling's or Haines' test, impaired liver function was concluded. This conclusion was often false, as the liver may let much dextrose pass, which may be taken care of by the tissues; pancreatic disease also complicates the test, greatly diminishing the tolerance and storage power of the liver and muscle cells for dextrose. Any test resting on the elimination of dextrose is worthless.

An advance was made by substituting levulose in the form of honey. Levulose-elimination by the urine is very constant in liver diseases. In fact, the test is too delicate, as positive reactions occur whenever the urobilinogen test is positive. A dose of 100 gm. of honey in tea or water for breakfast is sickening and is followed in 50 per cent. of the cases by vomiting and diarrhea. Levulose-elimination is also increased in pancreatic diseases and diabetes. The test is advocated by high authorities, but is greatly inferior to the following galactose test.

Bauer,[9] of Vienna, first noticed that a man with a Hanot's cirrhosis who partook of large amounts of milk passed sugar in the urine, which sugar was not fermentable and was proved to be galactose. The glycosuria disappeared on stopping the milk. The great value of this observation has been proved by a large clinical experience.

Theoretically, the value of lactose as a test is believed to be based on the double work thrown on the liver in its digestion. Cane-sugar is with comparative ease split to equal parts of dextrose and levulose. Honey is almost pure levulose and cared for by the body cells as such. Lactose must be first split into equal parts of dextrose and galactose and galactose must be further transformed into dextrose, thus:

$$\text{Lactose} \begin{cases} \text{Dextrose} \\ \text{Galactose} \begin{cases} \text{Dextrose (?)} \end{cases} \end{cases}$$

So far as known, galactose cannot be used by the muscles and liver without change and is eliminated in the urine whenever contained in blood sent to the kidneys. Pancreatic disease seems not to influence its elimination. One liter of milk, 2 pints, contains about 48 gm. of lactose, which will produce 24 gm. of dextrose and 24 gm. of galactose.

The Test.—Forty gm. of milk-sugar are given in tea in the morning, after free purgation. The solution is not unpleasantly sweet and does not nauseate. Normally, only small amounts, 0 to 1 gm. of sugar can be detected later in the urine. This appears, if at all, in the first hour, smaller traces in the second and third hours, and by the fourth hour, certainly, all traces have disappeared. In cases in which the liver cells are diseased 4 to 10 gm. of galactose are eliminated by the kidneys. The amount is large for from three to six hours and continues for from ten to fourteen hours. Usually a quantitative test is unnecessary. In practice the patient takes the sugar at 9 a. m., urinates at 12 and calls at the office at 1. A single qualitative test of urine there passed usually demonstrates normality or abnormality. Galactose is detected as usual by Fehling's or Haines' test. Glycosuria seen in cirrhosis is usually due to a milk diet. In cases of pyloric obstruction, gastric dilatation, atonic conditions and other states which would delay the absorption of sugar from the alimentary tract, the test must be interpreted accordingly.

TABLE SHOWING CONCLUSIONS DRAWN FROM THE COMBINED USE OF GALACTOSE AND UROBILINOGEN

Disease	Galactose Test	Urobilinogen Test
Hepatic congestion	—	+
Cholelithiasis, complicated	—	+
Compression and obstructive icterus	—	+
Neoplasms	—	+
Carcinoma	—	+
Gumma	—	+
Echinococcus	—	+
Cirrhosis	+	+
Alcoholic	+	+
Biliary	+	+
Banti's liver (syphilis)	+	+
Hepatitis	+	+
Catarrhal icterus, infectious	+	+
Acute yellow atrophy	+	+
Poisoning	+	+
Phosphorus	+	+
Chloroform	+	+
Lead, etc.	+	+
Toxic parenchymatous degeneration of infectious diseases	+	+

CONCLUSIONS

The urobilinogen test is a very delicate test for impaired liver function. Any localized diseased cells will let pathologic amounts of urobilinogen pass to the urine. The galactose test on the contrary is a general functional test. Galactose is not passed in localized

7. Wien. klin. Wchnschr., No. 10, 1912.
8. Deutsch. med. Wchnschr., 1908, No. 35, p. 1505.
9. Bauer: Wien. med. Wchnschr., 1906, Nos. 1 and 52.

hepatic diseases when the remaining part of the liver has good compensatory function. In the various forms of cirrhosis the galactose test is uniformly positive, strongest in alcoholic cirrhosis. In septic conditions or advanced stages of infectious diseases, a positive galactose test results from liver degeneration. In cases of phosphorus poisoning, chloroform and mineral poisons, liver degeneration is not shown by the galactose test until some days after administration of the poison; in phosphorus poisoning, sometimes not until the second or third week. The great value of these tests for differential diagnosis lies in the conclusions which can be drawn from their combined use, as will be seen from the accompanying table.

The foregoing tests, used regularly in my work, are of such great value in diagnosis and so easy of application as to commend themselves in the routine examinations of all hospital and private practice. In my opinion, the urobilinogen test will be adopted in insurance examinations.

Western National Bank Building.

REPORT OF 150 CASES OF PULMONARY TUBERCULOSIS TREATED WITH TUBERCULIN

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The material for this report was derived from the histories of 150 cases of pulmonary tuberculosis treated with tuberculin at the Rhode Island State Sanatorium during the five years 1907 to 1912 inclusive.

In this series of cases tuberculin was not usually given to incipient or far advanced patients. The usual type of patient selected was the chronic one whose disease had been arrested or improved, but who was still having tubercle bacilli in the sputum with a moderate amount of signs. Tubercle bacilli had been present at some time in 132, or 88 per cent., of the cases. Only three or four had cavity signs. In a few cases, however, tuberculin was tried in those who had completely failed to improve under the usual hygienic-dietetic régime and who had sufficient temperature to indicate an active process. The tuberculin was given after the manner advocated by Trudeau, an effort being made to develop tuberculin tolerance by gradually increasing doses with as few reactions as possible. Tenderness at the point of injection, which was regarded as a local reaction, was present at times in the majority of cases. Slight general reactions occurred in 20 per cent. of the cases. There were no severe reactions. Fifty-six of the patients were given Watery Extract, forty were given Old Tuberculin, thirty-seven Bacilli Emulsion, and the remainder Bouillon Filtrate. The tuberculin books published by the Outdoor Life Publishing Company, recording in detail the prominent symptoms, were used to watch the progress of the cases in many patients who had sufficient education and intelligence to use them. In a few instances the treatment was discontinued because of the onset of temperature or continued loss of weight, yet it was thought proper to include these cases. A large proportion of the patients did not take the treatment as long as advised, as they could see no effect from it. Most of the patients were above normal weight when the tuberculin treatment was begun, yet ninety-one patients gained an average of 4.7 pounds, while forty patients averaged a loss of 3.4 pounds. Over 3,000 doses were given, or an average of twenty doses per patient and the average duration of treatment was sixty days. About half of the patients taking Watery Extract reached a maximum does of over 0.5 c.c. of Solution 100, many taking a full cubic centimeter. The maximum dose of Old Tuberculin was about 0.33⅓ c.c., and the maximum doses of Bouillon Filtrate and Bacilli Emulsion were much smaller. One patient developed pleurisy with effusion, another patient developed tuberculous meningitis, and three patients who had improved little or none on the ordinary sanatorium régime failed rapidly a few weeks after commencing tuberculin treatment, but as such complications and failures occur about as often no matter how patients are treated, they may be regarded as coincidences. In a few cases striking improvement occurred, but equally striking instances occur on the usual sanatorium régime, and on the whole these patients appeared to do neither better nor worse than patients not so treated.

No attempt will be made to review the voluminous literature on the subject, yet it may be useful to point out that many writers have reported too few cases, often without adequate subsequent histories, and many have contented themselves with ascribing improvement to the tuberculin which may have been due to other causes. Others have allowed their judgment to be influenced by a few striking instances of improvement which follow the use of tuberculin and have forgotten to mention striking instances of improvement which occur without its use. Some appear to labor hard to find something favorable to tuberculin.

In forming an opinion as to whether or not any treatment is beneficial, parallels should be drawn between two classes of patients, those who take the treatment and those who do not, and these parallels should be made from cases that are as similar in prognosis as possible. For this study, an attempt was made to match each one of the 150 patients taking tuberculin against another patient of the same classification, according to the National Association, and also anatomically according to Turban, and likewise to match only cases having similar records of bacilli in the sputum, temperature, pulse, respiration, general condition, weight, race and year of discharge.

An unsparing logic would also demand that the amount of intelligence and self-control, duration of disease, family infection, amount of sputum, sex, age, duration of sanatorium residence and many other factors should also be similar, but this was found impossible, as all the available material, comprising about 1,500 patients who did not take tuberculin, was barely sufficient to fulfil the conditions first named. There were, however, few marked differences in age and about 75 per cent. of the cases were matched as to sex. The condition on admission was allowed to stand unless tuberculin was given a long time after admission, during which time the condition had undergone marked change, when the case was reclassified. The length of time patients had fever and the number of febrile attacks were considered of more importance than mere height of the fever. The pulse averages for the first week were the same within ten beats. Respiration was only matched when abnormal, as was also the temperature. Under the general condition were considered not only strength and vigor, but digestive disturbances. No attempt was made to match the exact gain or loss in weight in pounds but only to match slight or marked changes, or the general

tendency. No negroes took tuberculin and none were used for this comparison. Patients were matched against those discharged within a year of each other, except in two instances.

To eliminate bias in the selection of cases they were chosen from printed records containing the main clinical facts as to classification, pulse, temperature, etc., but not containing the names of the patients, so that a knowledge of the subsequent histories should not create prejudice. Two or three options were selected in this way, then the names of the patients were ascertained, their charts studied, and the one having the greatest similarity accepted; if all were unsuitable, more options were found in the same way. Of course, no pretense is made that the two classes of cases were exactly matched in prognosis, but no pains were spared to carry out the method as completely as possible. Drawbacks to the use of this method are the abundance of material required and the amount of labor necessary to carry it out. While not perfect it should be much superior to slipshod methods of stating results of treatment and if widely adopted it would help to weed out more rapidly worthless methods of treatment in pulmonary tuberculosis. If applied to mooted questions like the "value of climate," it would eventually solve them, as the fruitless war of theories and opinions would eventually be displaced by evidence.

TABLE 1.—CONDITION OF PATIENTS ON ADMISSION

	With Tuberculin	Without Tuberculin
Incipient	10	10
Moderately advanced	137	137
Far advanced	3	3
Total	150	150

TABLE 2.—CONDITION OF PATIENTS ON DISCHARGE

	With Tuberculin	Without Tuberculin
Apparently cured	13	11
Arrested	80	51
Improved	38	61
Unimproved	19	27
Died	0	0
Total	150	150

TABLE 3.—COMPARISON OF PRESENT CONDITION OF PATIENTS WHO DID NOT TAKE TUBERCULIN AND OF THOSE WHO DID

	With Tuberculin	Without Tuberculin
Well	47	43
Living and working	14	20
Living	23	19
Dead	66	68
Total	150	150

Patients did not as a rule take tuberculin until several weeks or months after admission, so that ample records were available prior to the specific treatment.

The average duration of sanatorium residence for the tuberculin-treated patients was 11.1 months against 5.1 months for those who were not so treated. This difference in the duration of treatment would probably account for the difference in condition on discharge, as many patients who remain only two or three months are steadily progressing toward arrest or apparent cure, which terms nevertheless require time limits, from the last symptoms of activity, of two and three months, respectively. Of the patients who did not take tuberculin 37.3 per cent. remained less than four months, against 2 per cent. of those who took it. About 60 per cent. of the patients have been discharged over four years and 86 per cent. over three years.

The tuberculin-treated class has 2.7 per cent. more recoveries and 1.3 per cent. fewer deaths, but the untreated class has 1.3 per cent. more able to work. The present condition of these two classes of patients is therefore as nearly identical as one could expect it to be if the tuberculin treatment had been entirely without value.

The average length of life of those tuberculin-treated patients who have died up to this time was 22.1 months from the date of discharge against 14.2 months for those who did not take tuberculin. This extra eight months of life cannot be taken as sufficient evidence that tuberculin prolonged life because the tuberculin-treated patients remained in the sanatorium six months longer. In fact, if the tuberculin-treated patients, remaining as they did six months longer in the sanatorium, had not lived longer, it would have been evidence that the tuberculin actually did harm because it cannot be denied that sanatorium treatment prolongs life.

Through the courtesy of Dr. von Ruck, Watery Extract was furnished free of charge and was given to fifty-six of the above series. The solutions as furnished were convenient for administration and they seemed more easily given without reactions than some of the other tuberculins, B. E., for instance. So far as known it gave neither better nor worse results than the others, but as it was given at an earlier period (1907), more time has been allowed for the progress of the disease and death. The patients given Watery Extract were for the most part moderately advanced cases who had been in the sanatorium long enough to be in good general condition and the Watery Extract was given as recommended by Dr. von Ruck.

TABLE 4.—CONDITION OF PATIENTS AT BEGINNING OF WATERY EXTRACT TREATMENT

Arrested	21
Improved	22
Unimproved	13
Total	56

TABLE 5.—PRESENT CONDITION OF PATIENTS WHO TOOK WATERY EXTRACT

Well	15
Living and working	1
Living	4
Dead	36
Total	56

Nearly all of those classified as improved were above normal weight and fell but little short of the requirements of arrested cases. The average duration of treatment with Watery Extract was sixty-five days; the average maximum dose was slightly over 0.5 c.c. of Solution 100.

Even when these patients who were classified as unimproved at the initiation of Watery Extract treatment are excluded from consideration, 53 per cent. of the patients are dead.

CONCLUSION

While other observers using other methods of tuberculin administration and with more prolonged treatment may get different results, established by equally thorough statistics, this analysis furnishes no evidence that these 150 patients taken as a whole were influenced by the tuberculin treatment.

GASTROCOLOPTOSIS

ITS PATHOLOGIC SIGNIFICANCE AND ITS SURGICAL TREATMENT*

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Essentially there are two theories which have governed medical men's conception of ptosis as a secondary, rather insignificant phenomenon: the one, Glénard's theory, tends to show that enteroptosis is the result of an enigmatic nutritive disease, a *diathèse hépatique*, which involves atrophy and subsidence of the small intestines, whereby the organs lying above lose their support, which secondarily leads to gastroptosis, hepatoptosis, etc. This theory has now been abandoned by most in favor of Stiller's hypothesis which, in place of Glénard's mysterious liver-disease, sets up a so-called congenital, universal asthenia, a congenital weakness, laxity and gracility of the entire structure of the body, as of the individual tissues. The ptosis and the constipation are due to laxity and atony of the tissues, the pains and the nervous symptoms to neurasthenia, the whole simply being a manifestation of degeneration, and, as degeneration cannot be cured, it is natural that all votaries of this doctrine must regard a surgical therapy for enteroptosis as senseless. Simple logic tells us, therefore, that Stiller's theory is in the main at fault, and tells us to look around for another explanation of the overwhelming frequency of ptosis with women. In my opinion a very simple explanation is found in two circumstances peculiar to women, 1, their misuse of corsets and laces, and 2, the changes which pregnancy and childbirth involve in the intra-abdominal pressure.

Of Stiller's theory, then, there remains only this: that the corset and lace pressure when brought to bear on quite young, half-grown girls with soft, relaxable ribs naturally has especially easy play with those of the degenerative type, among whom the bones and tissues are particularly relaxable and flaccid.

Even in my article in *Hospitalstidende*, in which in 1898 I reported my first case of gastropexy, which led to a permanent cure of the considerable sufferings of this ptosis-patient, I set forth in its main features the conception that all the morbid symptoms and conditions which we find typical in patients with enteroptosis allow themselves naturally and spontaneously to be explained as a result of the ptosis. The correctness of this conception has been confirmed by the observation and study of the 400 cases which I have personally treated, the statistics of which I shall submit to you to-day.

I. VIRGINAL GASTROCOLOPTOSIS

Symptomatology.—In the course of the first or second year after the commencement of puberty, and when the wearing of corsets commences, the previously healthy individual begins to suffer from persistent constipation, to which is quickly added weariness, headache, loathing of food. In addition to these symptoms there occurs after some time cardialgia in the form of severe pains, which are always situated to the left of the median line and occur as soon as the patient partakes of food. The quality of the food has no significance so far as the rise of these pains is concerned, whereas the quantity—the mass and weight of the food—is of great importance, for which reason these patients can get along only by taking many, quite small meals during the twenty-four hours. In many instances, the commencement of the pains is accompanied by vomiting, and with a small group of these patients each meal is invariably and immediately succeeded by the discharge of a part or the whole of the food partaken of. In the first instance, the patients may maintain an astonishingly healthy appearance for many years; but if they disgorge everything, and are furthermore frightened by fear of the pains from attempting to eat, emaciation sets in, which may often reach an extreme degree, and present that aspect which I have called gastroptosis-cachexia, and which may result in the death of the patient as a consequence of inanition.

By examining the chemical function of the stomach one generally finds that the measure of acidity is normal, but in a certain number of cases one finds achylia, and in others, conversely, hyperacidity and even gastrosuccorrhea. In more than half of the cases, the motor function is completely normal, inasmuch as the stomach empties itself entirely in the course of four or five hours. In from 30 to 40 per cent. of the cases there is a slight delay (five to seven hours), while food-remains are rarely found eight hours after one of Bourget's experimental meals.

With many of these patients a whole series of nervous symptoms develop gradually as a result of this state of auto-intoxication and inanition, such as oppression across the loins, in the pelvis and the abdomen, clammy hands and feet, palpitation of the heart, physical depression; with some a mental relaxation and with others a sensation of dread. Finally disturbances in the function of the genital organs develop very rapidly, because the menstruation becomes irregular and is accompanied by diffuse pains in the abdomen and a deterioration of the regular symptoms. The menstruation is frequently very deficient and for years may entirely fail to appear.

I look for the cause of the virginal ptosis patients suffering so much more than the maternal ptosis patients do from pains and vomitings after meals in the circumstance that the tight abdominal wall and the narrow abdominal cavity do not permit of the free subsidence of the loosened organs. The result is that the stomach and also the colon fold themselves transversely with the longitudinal axis, and angles and bends occur which hinder the natural passage of the food and produce stasis and pains. The fact of the matter is, that all the vessels and nerves to the stomach from the large vessels and nerve-roots have their course just between the peritoneal layers, which either form the suspensory ligaments or cover these. They form, so to say, an integral part of the suspensory ligaments and, when these are folded, are also subject to bends and folds, and when the ligaments are stretched and lengthened by the subsidence of the stomach, a considerable drag is also exercised on the vessels and nerves. That such a distention of the sympathetic threads and thereby of the semilunar ganglion and of the vagus nerves, which, with the esophagus, extend into the thorax cavity, cannot fail to affect the activity of these nerves seems evident, and here, surely, is to be found the explanation of many of the nervous symptoms of these patients. As regards the invariable pains in the left side of the epigastrium, it seems to me that these are explained naturally as having their origin in the drag on the sensitive nerves which have their course in the subperitoneal tissues.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL. It appears in full in the Transactions of the Section.

Diagnosis.—The three wrong diagnoses under the flag of which virginal ptosis most frequently sails are (1) ulcus ventriculi, (2) colitis and (3) nervous diseases of the stomach or hysteria.

Those cases in which violent cardialgia and vomitings occur as an immediate result of meals and dominate the aspect are naturally confounded with ulcus ventriculi. This confusion happens all the more easily because the violent and frequent vomitings by no means rarely show streaks of blood, or even such a strong admixture of blood that they assume the character of hematemesis. The presence of constipation, indeed, only strengthens the diagnosis, because it is so often a symptom with ulcus.

In addition to this the examination of the position of the stomach by scraping auscultation, or by roentgenoscopy after a bismuth meal often reveals a subsidence which is disproportionate to the acute symptoms.

The differential diagnosis from ulcer is, as a rule, easily determined from the following facts: (1) the seat of the cardialgia being to the left of the center line; (2) the independence of the cardialgia of the quality of the food, but its dependence on the quantity of this (an ulcer patient suffers pain from eating rich, sour, spiced food, no matter how small the quantity, but stands milk; while a ptosis patient stands all such food equally well so long as the quantities are quite small, but suffers severe pain from milk and other neutral food when the quantity is too large); (3) the influence which the position of the body has on the symptoms. These are always worse in an upright position, and always improve and often disappear entirely with confinement to bed.

The cases in which constipation dominates the aspect of the disease, while the stomachic symptoms are comparatively minor, are often confounded with colitis. In many cases the confusion is promoted by this, that the constipation involves in reality a colitis with periodically occurring diarrhea. Here, also, is a differential diagnostic symptom of great value: that with ptosis, confinement to bed has a highly favorable effect on the constipation; while constipation arising from other causes generally gets worse with confinement to bed.

The diagnosis of hysteria and nervous disease of the stomach is generally given with such patients as have for a long time been vainly treated with ulcer-therapy or anticonstipation treatment, partly because their having been vainly treated for a supposed organic disease leads to the diagnosis of functional neurosis, and partly because these patients, little by little, on account of their protracted sufferings and the fruitless treatment, become in a great degree psychically exhausted and nervous individuals. The differential diagnosis from hysteria is, however, by no means difficult, when one analyzes the history and the aspect of the disease; because, it then always appears that constipation and dyspepsia have been the first symptoms of the disease, and still constitute the central feature in the aspect of the disease. Scraping auscultation and roentgenoscopy show us the presence of the ptosis, and, finally, an exact examination shows that the really hysterical stigmata are practically always wanting.

More rarely, the pure ptosis is confused with cancer. This happens with those patients who have become completely emaciated by vomitings and abhorrence of food lasting over many years, and who have acquired a cachectic complexion from the auto-intoxication arising from the stagnating contents of the large intestine.

I have already mentioned that, even where no trace of ulcus can be proved at the operation, *hematemeses* are not infrequent with gastroptosis. Such hematemeses are probably due to stasis in, and swelling of, the mucous membrane at the places where the wall of the stomach is creased.

Finally, in a certain number of cases, the virginal ptosis leads to the development of an hour-glass stomach. I think, indeed, that I dare assert that the solution of the long disputed question of the pathogenesis of the hour-glass stomach is to be sought for in the fixation of the creases of the subsided stomach caused by corsets and laces. The two theories which have hitherto stood in opposition to each other are, as is known, first, that the hour-glass stomach is a congenital deformity, and second, that it is due to ulcer, according to which the hour-glass form is due to cicatricial shrinkage.

An investigation of the history of the disease as regards the twenty-six cases of hour-glass stomach which I have personally observed shows that the first symptoms of the disease have always occurred during the years of puberty, when the misuse of the corset and the tight lacing commence; in their main features these symptoms entirely resemble those of virginal ptosis. Little by little the increasing hindrance of the passage, the retention and the dilatation in the proximal part of the stomach are maintained as an aspect of the disease, and, if hematemesis and melena occur in consequence of developing ulcerations, the aspect becomes more and more that of ulcus stenosis.

By my numerous operations for gastroptosis I have been able to observe all the stages of the development of the hour-glass stomach, in consequence of which I have formed in my own mind a consecutive view of this.

With virginal gastroptosis the bends of the creases occur essentially and naturally in two places: (1) on the lesser curvature at the transition between the pars cardiaca and corpus ventriculi, in the very place where the triangular solid gastrophrenic ligament (called by some pars condensa omenti minoris) ceases and is relieved by the more elastic portion of omentum minus; (2) on the medial edge of the hepatoduodenal ligament where the free portion of the duodenum (with the pylorus) bends toward the fixed part.

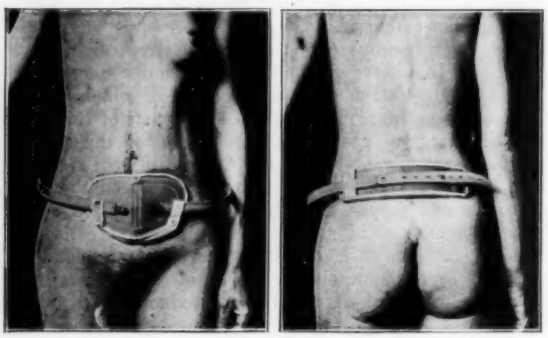
The hour-glass formation is generally due simply to the fine adhesions which form themselves in the folds of the serosa surfaces which rest one on the other.

The development is sometimes greatly favored by the fact that the omentum minus by coalescing with the omentum majus assumes a lace-formation. With gastroptosis we very frequently find a complete loosening of the omentum minus, the central part of which subsides and hangs over the anterior side of the stomach like a tongue-shaped clump of the omentum. It may then come in contact with the tip of the omentum majus and coalesce with this in a ribbon which draws a deep furrow in the stomach. The adhesions mentioned as occurring between the peritoneal surfaces, which I have seen in all stages, from the thin, veil-like adhesions, which are easily loosened, to the quite solid ones which are hermetically soldered, fix the ptosis creases, and these, like partition walls, protrude into the lumen of the stomach.

II. THE MATERNAL GASTROCOLOPTOSIS

It is this form we find in women whose abdominal wall consequent to past pregnancies and confinements has become distended and relaxed. Hereby the intra-abdominal pressure is altered, and the support, which the air-filled intestines offered to the subdiaphragmatic organs while the vigorous elastic abdominal wall acted, fails.

With women whose stomachs lie in a normal and secure position at the moment when the relaxation of the abdominal wall commences, it depends entirely on the strength of the ligaments whether a gastroptosis ensues at all. With strong women this does not occur; but with others, whose abdominal wall is less capable of resistance, a ptosis develops little by little; the development differing from the virginal ptosis in this, that the coloptosis is generally primary. Colon transversum, which is no longer borne up by the small intestine pelotte, is weighted down by the heavy feces so that it hangs like a downward convex festoon suspended by the two flexures. The pull first affects ligamentum gastrocolicum and mesocolon, which are elongated and dragged downward. It is quite common to find the gastrocolic ligament elongated to three or four times its normal length, when it is quite thin and perforated in many places. Second, it affects the stomach, the suspensory arrangement of which is also, little by little, stretched and elongated. The constipation and accumulation of fecal matter in the colon resulting from coloptosis affects with steadily increasing strength the downward drag on the colon and the stomach. It frequently happens that the heavy, feces-filled colon lies right at the bottom of the pelvis and, like an anchor, holds the stomach fixed



The truss as worn (see description in text).

in its subsided position. Furthermore, the stomach can drag down with it the lower part of the esophagus, and then we encounter gastroptosis in its extreme form.

With maternal ptosis the aspect of the symptoms differs from that of virginal ptosis in this, that the stomachic attacks—cardialgia and vomiting—are far weaker—are often, indeed, absent. It is due to the far more favorable conditions of space, as the stomach is not jammed or liable to be folded and bent as is the case with the virginal abdomen. For the same reason these patients do not generally suffer the innumerable pains and nervous sensations which characterize the others. That it is the distinction as regards space which causes the difference in the aspect of the disease is quite clearly perceived in the transition of a virginal ptosis to a maternal ptosis. So soon as the first confinement is accomplished, a great improvement occurs in the condition of the patient so far as these symptoms are concerned.

With maternal ptosis, the constipation with all its consequences is the dominant feature in the aspect. In course of time the effect of the auto-intoxication from the intestine reveals itself. The patient grows emaciated and sallow, suffers from headache and, in addition, from an ever-increasing sensation of subsidence, and from the unpleasant, depressing feeling that something is subsiding in the abdomen and from an oppressive feeling of fatigue across the loins. The drag of the subsided stomach on the cardia and the esophagus causes constant pain in the left side of the epigastrium and, not infrequently, difficulty in the passing of the food through the esophagus, so that a spasm of the cardia may arise; similar conditions sometimes occur with secondary dilatation of the esophagus.

It is characteristic of the disease that all these symptoms improve or vanish entirely with confinement to bed, while they at once recur or become worse with an upright position.

The coprostasis may attain such stages that attacks resembling ileus may occur, and, in extreme cases, the stomach may also become so loose that volvulus ventriculi may occur.

There ought not to be any rivalry between the medical treatment and the surgical treatment—if only for the reason that these patients always seek the medical man first, and it is only when all medical treatment has proved vain that they seek the surgeon, and then very frequently with one of the above mentioned erroneous diagnoses.

When the surgeon has comprehended the correct nature of the disease, the question is whether the case lends itself to bandage-treatment or whether it demands an operative treatment.

As regards the indication for the employment of a bandage, this varies greatly with the two forms of ptosis which I have described. While the majority of the maternal ptosis patients may be helped sufficiently with a good and rational bandage, with virginal ptosis patients one only quite exceptionally obtains an effect worth mentioning. This simply lies in the fact that the virginal abdominal wall is so muscular, vigorous and elastic that, to overcome its resistance, such a strong pressure would be necessary as would be unendurable to the patient. With maternal ptosis, on the other hand, we are able to obtain good results through the relaxed thin abdominal wall with a good bandage.

Numerous bandages for ptosis patients have been described, but only a few of these are of real value. An effective and good belt must comply with three requirements:

1. The pressure must act widely over the hypogastrium by aid of a large and rather firm pad. 2. The pressure must be powerful and invariable. 3. One must be able to adjust the belt in a recumbent position in the morning, before the patient rises, and while the organs still lie in their right position. For this reason all bandages which fasten at the back with laces are banned. I have returned to a copious, firmly stuffed pelotte, on a steel-spring belt. Here, as with the English double hernial truss, the pressure is exercised by two spiral springs which are movably connected with the large abdominal pelotte in front, and at the back are supported against os sacrum or against symphysis sacroiliacæ by one or two small pelottes. These springs can be made as powerful as one wishes, and relax but slowly and slightly, when they are easily tightened again. But even this powerful belt, which I recommend as the best, is impotent with most virginal ptoses as also with those particularly severe cases of maternal ptosis in which the colon transversum has subsided into the small pelvis, and is on that account beyond the range of the belt, being squeezed rather than raised by this.

In all these cases, then, the only help for the patient is an operative procedure which will raise the stomach and

colon into their normal position. For the achievement of this object we are in the possession of various methods: (1) direct gastropexy as it has been for the first time performed, independently of each other and after different methods, by Duret and Rovsing, and (2) the indirect operations which endeavor to raise the stomach, either by basting together and shortening the omentum minus as proposed by Stengel, Bier and Beyea, or from below as with Coffey's operation which, by stitching the omentum majus firmly to the anterior abdominal wall, raises the stomach and colon.

Notwithstanding the theoretic attraction of the indirect operations I must in accordance with my experience advise direct gastropexy as the safest and best method.

When in 1897, I thought for the first time of performing gastropexy on a patient who was admitted with the diagnosis of cancer ventriculi, but who only showed gastroptosis pure and simple, I at once employed the method which I firmly recommend as the best. Parallel with the lesser curvature I lead three strong silk threads in and out through the serous coating of the anterior surface of the stomach, leaving the pars pylorica free. The upper thread is placed close under the lesser curvature, and the two others, with an interval of about 2 cm., are placed in such a way that the greater curvature and a rather large piece of the wall above this are left free. With a fine needle the serosa coating between the threads is now scarified in all directions, also the surface of the parietal peritoneum, and eventually that part of the under side of the liver to which one wishes the stomach to adhere. The ends of the silk threads are led out through the entire thickness of the abdominal wall, that on the left as far from the center line as the rib-curvature permits, and that on the right at about 3 cm. to the right of the center line. The peritoneum is now joined with catgut, and the fascia and skin with aluminum bronze, and, after the line of wound has been covered with collodion and cotton wool, the silk sutures are tied over a glass plate covered with sterile gauze. the dimensions of which are a little larger than the stomach-surface which has to be fixed. In this way it follows that the anterior surface of the stomach lies flat, and close to the abdominal wall, without shrinkage and folding. These threads are left for four weeks and are then easily removed. A perfectly secure and solid adhesion is then obtained without leaving any foreign body in the abdomen.

Since 1897, when I performed my first gastropexy, till Jan. 1, 1911, I have myself performed the operation 163 times, and have received information from other Scandinavian surgeons of ninety-three operations performed in accordance with my method. All these 256 patients have been traced and their condition since the operation carefully examined, with the following results:

RESULTS WITH AUTHOR'S METHOD OF GASTROPEXY

Result	No. of Cases	Per Cent.
Complete cure	162	63.2
Great improvement	33	12.8
Improvement	18	7.0
Slight improvement or no change	32	12.8
Deaths	11	4.6

AUTHOR'S RESULTS COMPARED WITH THOSE OF OTHER SURGEONS

	My Statistics — Cases			Statistics of Scandinavian Surgeons — Cases	
Results	No.	Per Cent.		No.	Per Cent.
Cure	92	50.6	71.1%	70	75.2
Great improvement	24	....		..	....
Improvement	18	11.0		9	9.6
Slight improvement or none	21	12.8		11	11.8
Deaths	8	4.9		3	3.2
	163			93	

First, as regards the mortality, it may well be said that a mortality of 4.6 per cent. is *per se* small. But on analyzing the cause of death in the individual cases the real mortality from gastropexy proves to be far smaller. As concerns my own patients, two died a fairly long time after the operation from tuberculosis of the lungs, while four extremely exhausted patients died from bronchopneumonia during the week following the operation, but without any morbidity at all in the peritoneum. On the other hand, two died from ileus; the one from a duodenoventricular ileus due to the strangulation of the duodenum over an old adherence, the other from ileus of the small intestine due to an accidental strangulation of a coil of the bowels over an old adherence due to an old hysteropexy.

As regards the three deaths mentioned in the statistics of the other Scandinavian surgeons, two of them had absolutely nothing to do with the gastropexy as such: the one was due to a casual perforative appendicitis, the other to bleeding from a gastro-enterostomy performed simultaneously with gastropexy. In the third case, however, death must be ascribed to gastropexy, inasmuch as it was due to ileus of the stomach, the necessity of hepatopexy having been neglected; the sunken liver then rode over the pyloric part of the fixed stomach.

The mortality with gastropexy proper is then three in 256, or 1.17 per cent. As regards the recoveries, seventy-one, or 75 per cent., of the patients were cured to the extent of being relieved of their pains, of regaining a healthy appearance and their strength, and, from being incapable, depressed, miserable wrecks, of becoming able-bodied, healthy and happy people.

There then remain about 25 per cent. of the cases in which the effect of the operation has not been satisfactory: in 11 per cent. the condition was improved considerably, but in 12.8 per cent. the improvement was quite insignificant or *nil*. As regards the cause of the bad results an analysis of these cases warrants the hope that still better results may be attained in the future.

In some cases an imperfect diagnosis has been the cause of the bad result, as for instance the overlooking of an ulcer in the stomach or in the duodenum, or of cancer in another organ.

Finally there is a very important point which explains the difficulty of obtaining in many cases a complete cure for these patients, that is, the many consequences of enteroptosis and lacing which are coordinate with gastroptosis and coloptosis. First, the straightening of the lowest aperture of the thorax may be so considerable that there is no longer any room at all for the liver and the stomach, and therefore it is impossible to fix the stomach in a satisfactory manner without jamming it, just as it is impossible to get the colon sufficiently raised and to straighten out its folds and bends.

Even if the condition of the patient improves somewhat, the pains and the constipation in particular will nevertheless continue after the gastropexy.

Where the stomach is concerned I think that one may obtain better conditions: partly by giving up any idea of its reposition, inasmuch as one fixes it lower down where there is room for it, and partly by making the abdominal cavity more capacious with a plastic enlargement of the abdominal wall. In such cases I have attained an excellent result by doubling the width of the musculi recti.

Here, in this fortunately small group of cases, is, according to my experience, the real indication for Arbuthnot Lane's "shortening" by ileosigmoidostomy,

which I have employed with excellent results in two otherwise desperate cases.

What still has great influence on the results of gastropexy is the ptosis of other abdominal organs, above all, of the liver and the kidneys, which is so frequently present.

Therefore, with attendant hepatoptosis, hepatopexy should always be performed simultaneously with gastropexy. How frequently this is indicated is seen by my having had to perform hepatopexy in no less than sixty-eight of my cases. I perform this in part directly with silk sutures which fasten the serosa covering on the convexity of the liver to the diaphragm, and in part indirectly with the aid of the ligamentum teres. This is severed after a double ligature, and the topmost end sewed to the diaphragm with strong silk thread, whereby the liver is raised up. It is of great importance that hepatopexy shall be performed very substantially with wide scarifications, in order that the heavy organ shall not tear itself loose again and sink down on the stomach. Sometimes the lacing involves the development of a large hypertrophied left lobe of the liver, which pushes against the lesser curvature, and thus makes impossible the replacement of the stomach in its normal position. In four cases I have been obliged to remove such a lobe of the liver by resection, in order to be able to perform gastropexy.

In some few cases in which pains and constipation remain after gastropexy this is due to the subsidence of one or both kidneys, and the patients do not then recover entirely until after a nephropexy. With ten of my cases it was not until after a unilateral or a bilateral nephropexy that I succeeded in attaining an absolute result. A right-sided nephroptosis, especially, often involves a subsidence of colon ascendens and a pressure on the cecum, thereby keeping up the constipation and pains.

Gastro-enterostomy is never indicated with a simple gastroptosis, experience even showing indeed that it is a highly injurious operation, inasmuch as not only do the existing symptoms deteriorate greatly, but an entirely new complex of symptoms also supervenes: nausea and gall-vomitings. This is simply due to the fact that gastro-enterostomy does not at all strike at the cause of the stasis which lies in the large intestine and far down in the small intestine at the opening into the cecum, but, on the contrary, instead of removing the drag and the weight which the subsided stomach exercises only increases this further, and a bend will very easily arise on the subsided folded coil of the anastomosis, which leads to a more or less pronounced circulus vitiosus.

Gastro-enterostomy, then, only increases greatly the sufferings of the ptosis patients, and even reduces them to a condition of extreme emaciation and misery. At one time or another I have had eight such patients under treatment. With four of these I have obtained a complete cure and with the other four a very great improvement by separating the intestine and the stomach at the point of the anastomosis, and, after having individually closed these, by performing gastropexy.

If physicians, the world over, could have their eyes opened to the right diagnosis and treatment of these symptoms, an extraordinarily large number of suffering, disabled persons might regain health and strength by a bandage-treatment or by gastropexy, and the physicians would be relieved of the most ungrateful and wearisome patients.

THE RÔLE OF THE MOVABLE KIDNEY IN INTESTINAL AND VASCULAR STASIS *

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Speculation is still rife as to the causes of the falling of the viscera from their respective positions in the abdominal space. It is generally admitted that there is a constitutional type in which there is a symmetrical descent of all the organs, and many observers are agreed that many of the extreme types encountered are due to congenital anomalies or defects. According to Rosengart's theory, congenital splanchnoptosis implies the persistence of the embryonic positions of all or part of the abdominal viscera, while the acquired forms imply the gradual reversion from normal to fetal positions. Arrest of any abdominal organ at certain stages of fetal development establishes the conditions that determine ptosis, and in order that the right kidney and the ascending colon shall attain their normal positions it is necessary for the colon to pass in front of and across the right kidney, and if this rotatory movement fail and the colon remain in its fetal position, both organs remain displaced, occupying positions characteristic of splanchnoptosis. In like manner, the loose attachment of the peritoneum covering the right kidney and its imperfect extension over the colon without proper grasp of the latter offer the conditions necessary for abnormal mobility of the right kidney.

In one or other of the groups referred to one would include many of the cases classified as Glenard's disease, many of which doubtless are acquired according to the rules laid down by Glenard, who taught that the organs made their descent in orderly sequence, beginning with the fall of the transverse colon. Later observations have established variable and varying sequences of descent. Attention is called to the frequency with which ptosis of the right kidney takes place as a result of trauma, and also ptosis of the colon as the result of loading of the bowel in habitual constipation. Ptosis of individual organs is far from being uncommon, the solid viscera, because of their relative weight, furnishing the most frequent examples.

The uterus is a most striking example of a solid organ subject to ptosis because of intrinsic conditions which effect alterations in its dimensions, positions and weight. The hollow viscera, because of their light weight and air contents, naturally float high in the abdomen, subject always to variations because of the unnatural burdens they are often forced to carry. To what extent the abdominal organs are maintained in their respective places by the force of abdominal pressure is uncertain. According to the views of Weisker, the only demonstrable force exerted when the abdominal muscles are quiescent is the hydrostatic pressure of one organ on the other in mutual contact, faceted and held together in the same space. It is difficult to believe that this force can do much toward giving them poise and fixity in their respective positions.

Of paramount importance in the study of acquired forms of splanchnoptosis is the determination of the organ of primary displacement. That there are several

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organs which may be refractory there can be no doubt, nor can there be any doubt that the process may begin below or above. For example, extreme ptosis of the uterus with displacement, by direct traction on the bladder, will cause ptosis of that organ, and by traction on the ureters may cause the beginning of ptosis of the kidneys. In like manner, from above, ptosis of the colon may determine, by traction on the mesocolon, ptosis of the group of organs related to it. From above it is obvious that the liver, when displaced from any cause, will force down by its weight all the organs immediately under it.

It is plain, therefore, that acquired ptosis does not begin in a classic way with the descent of some particular organ, but rather that it is a bizarre process which permits different organs to be refractory. It would be impossible in a limited study to work out the process of ptosis from the various points of departure, and this study, therefore, is limited by its title to the study of the relation of the kidney to ptosis and stasis, the latter considered from the vascular as well as the intestinal side.

The anatomic relationship of the kidney and colon establishes in almost all cases that ptosis of one implies at least a degree of ptosis of the other. I cherish the belief that the kidney is more frequently the organ of primary displacement than is generally supposed, and by implication that splanchnoptosis in its worst forms is an acquired state, the development of which can be definitely traced, and not infrequently, to the initial descent of the right kidney.

In character it must be considered as a solid organ, more or less wedge-shaped, placed behind the peritoneum, possessing at all times a considerable degree of mobility and having great density and unusual weight for its size, in contradistinction to the hollow, air-containing viscera, like the colon, which are more commonly regarded as the causes of ptosis.

For a better appreciation of this study, the various factors that contribute to the development of the gravid kidney should receive consideration.

To begin with, attention is called to what is believed to be a clinical fact, i. e., an early and minor state of hydronephrosis, which is the outcome of the voluntary retention of urine, a fault common in both sexes, especially the female, the effect of which is to cause delay in the transmission of the urine from the kidney and its retention in the kidney pelvis and calices, which enlarges their capacity and augments the weight of the organ.

The state of hydronephrosis, when once it develops directly as the result of pressure on the ureter by the kidney, or its angulation by the loss, in a state of ptosis, of its alignment with the kidney pelvis, of course, greatly increases the dimensions and weight of the kidney. At this stage another element appears, i. e., the effect of pressure on the intrinsic blood-supply and the secretory apparatus, which causes stasis of both and adds further to the size and weight of the kidney, and doubtless contributes important elements to the symptom-complex of the disorder.

The next factor that operates in the same direction is the progressive drag of the kidney, in a state of ptosis, on its own vascular supply. The renal artery and vein are normally placed at right angles, or at a slight obliquity from above, downward and inward, to the aorta and vena cava, so that the sweep of the circulation is very direct and easy. The range of the movement of the kidney in extreme ptosis is determined by its pedicle, and the position that it takes is one of rotation, swinging, as it were, in the arc of a circle by gravity, and when palpated in the abdomen in the usual way, while occupying the zone of its limit of descent, the dorsum will be found directed obliquely downward and inward, its lower pole often in touch with the median line of the body. The position of the vessels is now illustrated by Figure 1, exhibiting two very important conditions, namely, the display of an abnormal obliquity, distortion and lengthening of the renal vessels, with extreme tension and narrowing of both, and also a deformation and deviation of the vena cava and aorta. This marks a new condition which more than any other single factor, because of the introduction of new elements such as passive congestion, edema and connective tissue proliferation, increases its weight.

Thus is developed what one may well term the "gravid kidney," the play of which hereafter is of the greatest moment in causing not only progressive ptosis of the viscera, but the multiform disorders associated with splanchnoptosis and intestinal stasis.

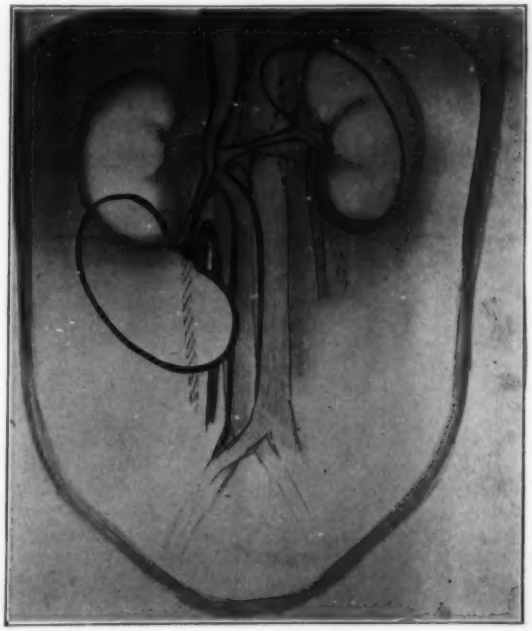

Fig. 1.—Semidiagrammatic illustration, drawn from the cadaver, of extreme distortion of the vena cava and aorta and displacement of the left kidney incident to marked displacement of the right kidney, resulting in vascular stasis.

In relation to the action exerted by the kidney, once it has become freely movable and gravid, its range of movement progressively increases, and inasmuch as it is placed behind the peritoneum, the force that it exerts is that of a hammer or pile-driver, which intermittently strikes with blows of varying strength against the lines of cleavage between the peritoneum and the structures on which it rests. The tendency of this force, which increases *pari passu* with the ever-enlarging kidney, is to part the peritoneum from its attachments, which yield more and more until it becomes stretched and unfolded to a degree that permits it to slide downward and forward, with the organs attached to it, to lower levels in the abdominal space. It is contended that this process may take place even under conditions in which the

kidney is not closely connected by peritoneal investment with the ascending colon through similar action of the gravid kidney. Observations made in the post-mortem room on the altered position and deviation of the blood-vessels in these relations show very striking results.

After the kidney has been stripped from its connections with its fat envelope, and detached from Gerota's capsule and placed in the position peculiar to extreme ptosis, it is observed that the vessels are stretched, especially the renal vein, its greater elasticity allowing it to become unduly lengthened and its caliber reduced to one-half or even less, a slight rotation of the kidney at this time on its long axis tending to obliterate its lumen entirely. The inferior vena cava is found at the same time dragged from its bed to the right, its caliber also reduced, the vessel having a sigmoid curvature, the center of which is at the point where the downward traction is exerted through the renal vein by the gravid kidney. When increasing traction is exerted on the kidney, these effects are accentuated until a point is reached when the lumen of the venous trunk is readily obliterated (Fig. 1).

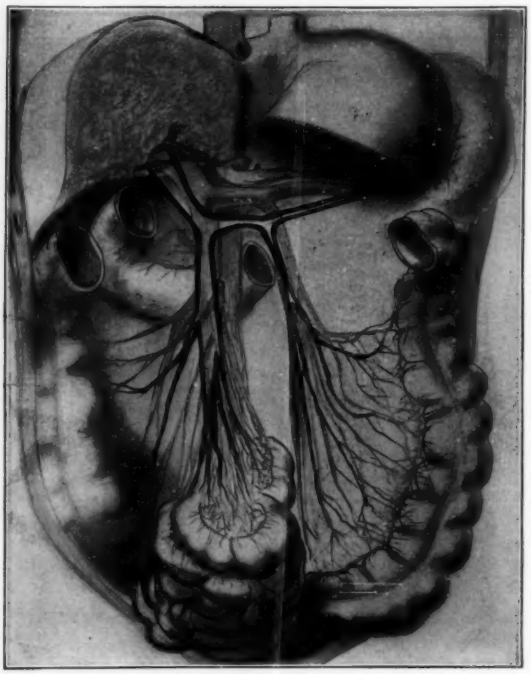

Fig. 2.—Semidiagrammatic illustration of the drag of the superior mesenteric vein on the portal vein and the inferior mesenteric vein on the splenic vein resulting in enteroptosis.

It will be observed at the same time that the left kidney is being displaced in the same direction by the same force. I have observed two cases of exaggerated ptosis of the right kidney in which groups of very definite symptoms were referred almost exclusively to the left side and explained by the presence of a movable left kidney and relieved by operation on the right kidney, leaving very little room for doubt that the descent of the left kidney may be initiated in this way.

It is evident, therefore, that the vascular disturbances associated with ptosis of the kidney are fraught with great importance, not only because of the intrinsic disorders already referred to, but because of the *impasse* placed directly on the systemic circulation below the renal vessels.

It would be impossible, in a study limited by time and space, to take into account all the vascular disorders associated with ptosis in respect to each viscus involved, but attention is briefly called to the colossal disturbances that one would expect to result when complete prolapse of the large and the small intestine takes place. Writers and operators not infrequently refer to the apparent redundancy of both, and one distinguished author expresses the opinion that ptosis of the intestine will not infrequently be found to be the expression of its abnormal congenital length. Observations on the alterations that take place in the large and the small intestines as the result of ptosis are limited mainly, as a rule, to passing comment. The opinion is ventured that advanced ptosis brings about their elongation and increase in weight, thereby intensifying the various associated disorders.

It is believed that the elongation of the intestines which naturally tends to their displacement and descent is due to continuous traction on their ligaments and mesenteries, causing the gradual unfolding of the intestinal loops, and their increased weight in great part to a muscular hypertrophy engendered by the necessity of overcoming greater barriers than the normal; that passive congestion and edema may also contribute to their increased weight admits of little doubt.

Incidentally, in this connection, attention is called, when ptosis of the intestines is complete, to the disturbances in the chylopoietic system that one would expect to result from the traction exerted by the prolapsed intestines, on the one hand, through the drag of the superior mesenteric vein on the portal vein, and, on the other, through the drag of the inferior mesenteric vein on the splenic, causing stasis throughout these great areas, which must exert far-reaching effects on the functions of all the great organs involved (Fig. 2).

There are authors who contend that intestinal stasis is a constant accompaniment of splanchnoptosis. It is believed that a careful analysis of a large number of cases would demonstrate that the incidence of intestinal stasis is relatively small in this disorder.

The term "intestinal stasis" is used not infrequently without regard to its definition, which predicates a retardation of the fecal current throughout the intestinal canal. The conditions commonly described as constipation and obstipation having a different origin would naturally fall under a different definition. Observers are agreed that even in advanced types of splanchnoptosis, in which there has been extreme descent of the intestines, the peristaltic wave is active and strong, and in point of fact the motility of the intestines is not seriously impaired, and that the tendencies of the intestines are against stasis; furthermore, that in many types of ptosis, catarrhal conditions are present which indicate an abnormal peristaltic activity.

It is held doubtful, therefore, that ptosis is a direct cause of stasis. That intestinal stasis, however, may take place in association with ptosis is admitted, but in such instances, generally speaking, it will be found that the lumen of the intestines is altered either by angulations, torsions or other deformations which are the result directly of the extreme dislocation of an elongated and overgrown intestine. It is believed, however, that such cases are very rare. It will be seen also that when stagnation of the fecal current of the intestines takes place, as it may at times at the seat of normal or abnor-

mal flexures of the intestine or elsewhere, mucous or peritoneal lesions have developed and brought about such organic changes as to lead to stenosis of the intestinal lumen, thus causing intestinal stasis, a strictly secondary process. Included in the variety of obstructing or stenosing lesions that may develop in this way, one must include a peritoneal disorder, described and referred to by a number of distinguished writers of late, and known as "membranous pericolitis."

It is believed, therefore, that as long as the intestinal lumen is preserved in its integrity, splanchnoptosis, even when far advanced, will not cause stasis, and that normal and even abnormal flexures of the intestine under like conditions, its lumen being intact, will not tend to the delay of the fecal current and cause stasis.

Provided that the lumen of the intestine is whole, therefore, it is believed that despite well-advanced splanchnoptosis and the apparent barriers that follow in its wake, including exaggerated, normal and abnormal curvatures and flexures, intestinal stasis will not be the rule, but rather the exception, and further, that even if barriers were present of any kind which impaired the intestinal lumen to degrees in which only one-half and even as low as one-fourth of it remained, so great is the power of accommodation of the intestinal muscularis that its functional activity might be equivalent to par.

In view of these, and many other parallel observations, it is difficult to believe that minor degrees of angulation, such as are caused by peritoneal ligaments which are congenital — of which the so-called ileal kink might be mentioned as a type — will contribute at all toward causing intestinal stasis. To repeat, therefore, there is very little doubt but that the compensating mechanism of the intestine is capable of overcoming all such barriers, and that even organic and stenosing barriers in which the lumen of the bowel is seriously impaired are readily overcome by the same mechanism.

That intestinal stasis does take place in splanchnoptosis under conditions in which the lumen of the intestine is intact is open to very little doubt; and this brings one now to the consideration of the causes of intestinal stasis in such cases.

The relation of vascular to intestinal stasis is considered in the most casual way by most writers on the subject. It is evident, on inspection of the viscera in operations performed on those suffering from splanchnoptosis, that their vascular supply is excessive, that they are turgid with blood, that venous blood is greatly in excess and that a state of venous hyperemia exists. If one could extend the examination to the interior of the hollow viscera, it is more than likely that congestion and edema of the mucosa would be present, which general state would explain in a more logical and rational way the occurrence of intestinal stasis.

Of great moment, in this connection, is the loaded state of the intestine with blood deprived of oxygen, which would naturally react on structure and function, to the grave impairment of both. The reaction alone of such vitiated blood-supply on the elaborate nervous mechanism of all the parts involved would go far toward explaining the multitudinous functional disorders which are everywhere in evidence.

It is held, therefore, that vascular stasis is the potential agency which ultimately brings about intestinal stasis, rather than the intrinsic intestinal disorders which are commonly regarded as the causative factors and which are too frequently accepted as the basis and warrant for surgical treatment.

Time does not permit the study of the associated disorders of the nervous system which may have even a more intimate bearing than those of vascular origin. One must observe, however, that there must exist in states of extreme ptosis serious disorders of the great splanchnic and the celiac systems which must bear their part of the drag, tension and intoxication which are now universal, and which find their extreme expression in the neurasthenic and psychoneurotic states which give to the whole picture its most dismal aspect.

The achievements of surgery in this field are not to the credit of the craft. An attempt has been made to show that only in a very minor degree are the indications for treatment positively surgical and without doubt these have been shunned rather than courted. On the other hand, a vast amount of energy has been expended in devising operative measures for the relief of splanchnoptosis and its derivative disorders, which in point of fact have done less for the exploitation of ways and means of permanently relieving the host of people afflicted with these disorders than for the fame of maladroit operating surgeons. A few of these operations may properly be singled out for criticism.

1. Operations designed for the relief of gastroptosis.—When this state exists alone in the presence of, and associated with, disordered states of digestion or diseases of the digestive organs which cause delay in the transmission of the stomach contents and other disorders, intervention may be justified, provided that it relieves the condition and does not leave in its wake a state that is worse than the original. The *x*-ray has demonstrated that the stomach in a state of ptosis possesses, commonly, remarkable motility and mobility which are indispensable for its function. If any operation be performed for its uplift and fixation which alters its position during digestion (which then approaches the vertical) and at the same time deprives it in any degree of its normal power of movement, such operation should be condemned, and no condemnation can be strong enough when directed against operations designed for the replacement and fixation of a stomach or other solitary organ which occupies its equivalent position in relation to splanchnoptosis. What does it avail the sufferer to have his stomach hooked up in an attic while all his other organs are left trailing downward to the basement?

2. Operations designed for the relief of intestinal stasis, associated or not with splanchnoptosis having a definite symptom-complex, but without manifest obstructing or stenosing lesion whereby extensive areas of the large intestine are excluded from function, either by resection or anastomotic procedure.—The study of design in Nature finds no more perfect example than that of the primitive intestine in its three parts, all for one and one for all. It is not a long step in the same individual from the primitive intestine to its derivatives, but during that relatively short period things have happened that are evidently not yet known or understood, which cause the derivatives of part of the primitive intestine to fail in the discharge of their duties; and because they have faltered or failed, forsooth, it is decreed that they must be led to the guillotine, the decree being that the derivatives of the hind-gut must be cut out and banished forever, and the derivatives of the fore-gut and mid-gut must jointly thereafter bridge the gap. The parallel is only slightly overdrawn, but at this point surgery has departed from its standards.

The resection of the colon will always have its place in surgery, and to a limited degree, perhaps, in relation

to these disorders, notably the giant colon. But because, in its general application, it is too radical and dangerous, does not strike at the causes of intestinal stasis and is not a rational and orderly step in the evolution of the measures that are necessary for the permanent relief of these disorders, it is believed that it should be condemned and placed under the ban of surgery.

Whereas surgery has run riot in this field, conservative legitimate surgery has very largely kept aloof and withheld its benefits from very important groups of cases whose needs are clearly surgical. Many of the most distinguished operators decry any and all operations devised for the relief of ptosis of the viscera.

It is generally admitted and this study recognizes that a large group of cases of splanchnoptosis are acquired and can be traced not infrequently to the initial displacement of some particular viscus, in one case, perhaps, a kidney, in another, a colon. It is therefore fair to assume that in many cases of splanchnoptosis a timely surgical operation consisting of the replacement at the proper time of a single viscus or single group would not only relieve the existing symptoms, but prevent the extension of the process to other organs and avert in many cases the development of splanchnoptosis with its attendant evils.

Observations with the aid of the *x*-ray have recently been made, which in two cases have definitely shown advanced ptosis of the right kidney without ptosis of any part of the colon or the other viscera; the attempt was made unsuccessfully in one of these cases to determine simultaneously the position of the ascending and transverse colon and the right kidney by the previous administration of a bismuth meal and the instillation of collargol (colloidal silver) into the kidney pelvis at the proper time.

Although the *x*-ray failed in this solitary instance, it is thought that it might be useful in many cases whether used simultaneously or in stages, and for its proper execution, it is suggested that the test be made in both the upright and the recumbent positions. It is thought that observations based on such lines of study might enable one to trace the process from its beginning to its end.

Opinions vary as to the order in which the phenomena of splanchnoptosis develop. The general observation of a very considerable number of acquired cases would seem to warrant the conclusion that in this morbid state ptosis of the organs, singly or severally, is the primary state, which leads progressively, because of perverted anatomic states of the viscera due largely to vascular stasis, to disturbed function of all the organs involved; so that circulation, digestion, assimilation, nutrition, metabolism, blood-formation, innervation, secretion and excretion, etc., become more or less, in the order stated, involved and reduced to states of confusion and perversion which mark time to the progress of the disorder, always faithfully reflecting it.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROVSING AND MACKENZIE

DR. JOEL GOLDTHWAIT, Boston: It is evident that ptosis or downward displacement of the viscera is very common. A large number of human beings have such ptosis, but with very many it causes little inconvenience. It is only when the malposition of the viscera interferes with their function that the individual complains of symptoms which are sufficiently annoying to demand intervention. We must then investigate the case carefully, so that we may be in position to decide what is the element of chief importance, and relieve it so far as lies in our power. Since a large number of persons have this condition, and since very few of them manifest any symptoms early in life, I think we may fairly conclude that the condition which causes the symptoms is acquired, this being added to the congenital formation. Therefore, we should not be led astray by seeing only one organ, but should try to view the patient as an individual made up of many organs, realizing that health does not depend on anatomic position of these organs, because very few of us have what is supposed to be a normal anatomy, but that it consists in a reasonable adjustment of these organs. It is interesting to note that while a large number of individuals have this ptosis, there are many different types of ptosis and that these types are perfectly recognizable many times even without the aid of the Roentgen ray. The position in an acquired ptosis is very characteristic. The ribs and diaphragm are forced down; the stomach consequently must be forced down. If there is a normal attachment on the right side, the colon and liver are pushed down. In the examination we should not be content to have the patient lie on the table, because then all the organs are in their best position. It is only when the patient is standing erect that the ptosis is observed to the full extent. There is a second type of ptosis, the congenital type. There may be fewer symptoms in this type than in the acquired. It is a type seen at different ages in the child, no matter how young it is, and in the adult, no matter how old he is. These patients rarely have any retroperitoneal fat, and when the patient bends forward there is a decided depression, a hole, in the back between the spine and the lower ribs, because of absence of fat in the lumbar region. This absence of retroperitoneal fat is a very important point to bear in mind in treatment. If it is necessary to do any surgical work in these cases we must not stop until the adjustment of all the organs is the best possible and until the retroperitoneal fat has reformed.

DR. JABEZ N. JACKSON, Kansas City, Mo.: Conditions about the ileocecal junction have no connection with and play no part in the general condition of visceroptosis. Our conception of the condition which we have described as membranous pericolitis has been set back very largely by Lane's idea. It is Lane's conception that we are dealing primarily with a visceroptosis, due to the upright position of man, and the pericolonic membrane he describes simply as adhesions which are formed in a physiologic effort to antagonize the downward displacement of the colon. It is evident to the surgeon who has studied these conditions that there is not the slightest tendency to prolapse of any part of the intestinal canal, with the exception of the cecum and in some instances of the transverse colon. As a matter of fact, the hepatic flexure is held up more closely than usual beneath the costal margin, so much so that in some instances there exists a hepatic mesentery. We do have ptosis or dilatation of the cecum. Wilms, of Heidelberg, describes a similar ptosis or dilatation of the cecum which he claims to exist independent of any membrane or adhesion and to which he has applied the term "cecum mobile." Other German observers, on account of the attenuation and dilatation have preferred the designation "typhloatony" or "typhloectasia." Dreyer, of Breslau, however, has found the cecum movable in 67 per cent. of all subjects examined in the dead house. I have personally operated on thirty-five cases of membranous pericolitis with its associated large cecum but have had only one case in which the symptoms were present with a dilated cecum but without any membrane or adhesions. We are inclined, therefore, to consider the mobile cecum as a rare clinical entity, but instead, it is rather an associated sequence of the constriction from the membrane. There is room for considerable discussion as to the etiology of this membrane found around the outside of the colon. In a general sense, it may be said that several theories can be adduced to account for the presence of this membrane. One theory attributes the membrane to faulty development, a second theory is that the membrane is a physiologic response to mechanical demands; and a third class of theories presumes an inflammatory origin of the membrane.

DR. T. ROVSING, Copenhagen, Denmark: I believe that the common cause for these adhesions is a coloptosis. If there is a

ptosis and constipation the heavy fecal material in the bowel keeps the transverse colon down in the pelvis; adhesions take place between the ascending colon and the transverse colon. I think the adhesions form in the same manner as I have seen in connection with the hour-glass-stomach. There is formed a fixation of the bend which causes a stricture and hinders the passage of fecal material. I cannot see why the adhesions should always be on the right side and involve the right flexure, if it were not the ptosis which is the reason for it. Of course, when these adhesions are there, we cannot wait to cure the constipation by gastropexy, and in these cases I quite agree that here is the indication for anastomosis between the ascending and the transverse colon, or between the ascending and descending colon, as has been mentioned. I have tried in two cases to do an ileosigmoidostomy according to Lane's method, and have had very good results. In a third case I had a very bad result. I thought the patient was quite cured, but when she had been at home about three months she suddenly developed an ileus. At Lane's clinic in London I saw quite a few cases in which ileus developed after operation. I think the indications for that operation must be confined to very narrow limits. I would certainly very much prefer to do a colo-anastomosis instead of extirpation of the colon, because I believe the results would be much better. Where you find constipation and coloptosis without adhesions, there only may be indication for a gastropexy.

DR. W. J. MAYO, Rochester, Minn.: I want to correct a false impression which seems to prevail in this country concerning the work of Mr. Lane. He is one of the world's foremost surgeons. During the past ten years he has distinctly advanced the surgery of the bones, of the cleft palate and of the large bowel. He is also a great teacher. In order to drive home his point or convey his idea, he may occasionally overstate things, but if one observes his work on the bones and the large bowel, one does not get the impression that he is a poor surgeon or that half of England is going about without a colon. He is doing that particular operation only rarely, but he is doing an ileosigmoidostomy. While I am by no means convinced that Mr. Lane's position as regards surgery of the large bowel is even approximately correct, it is certain that the operation of ileosigmoidostomy is being done with increased frequency by a large number of surgeons.

PARAKERATOSIS OSTRACEA (SCUTULARIS)*

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NEW YORK

The encasement of our body, the skin, which serves as a protecting envelope to the deeper structures, is continually shedding its most superficial layer. The normal desquamation of dried horny cells is a physiologic occurrence which takes place almost unobserved and imperceptibly. This uppermost stratum of the epidermis, made up of ever-detaching horny cells, is called the horny layer. It is this layer which gives the surface of our body its armor plate, as it were. On the good condition of this surface protection depends the intactness of our skin and its ability to resist microbic and mechanical influences.

A normal and healthy cornification which the constantly renewing deeper layers undergo as they emerge to the surface from the state of succulency below to that of desiccation and cornification above keeps the skin intact in its continuity. The existence of fat in the cells of the stratum lucidum and from the glandular secretion impart an impermeable coating to it.

Normal cornification is caused by a fatty, wax-like substance, keratin. According to Unna[1] the protoplasm of the succulent epidermis cells is transformed into keratin. Phenol, sulphuric acid and sulphur from the body-fluids are taken up by the peripheral portion of the cells which is then reduced into a highly resistant substance called keratin. The prickle-cells in the course of their gradual upward displacement persist and also change into keratin. Their remains can still be recognized by the granular appearance of some of the cornified epidermis cells. As to eleidin found in the lowest part of the horny layer and keratohyalin observed in the stratum granulosum, while they do not seem essential in the formation of keratin, yet they are thought to be essential in the process of cornification. They are held to be separation products of the cell protoplasm, different physical states of the one substance.

While hyperkeratosis as seen in ichthyosis, pityriasis rubra pilaris, keratosis pilaris, etc., consists in an increase of the horny layer caused by excessive production of keratin, parakeratosis represents a type of imperfect cornification. At first glance this would seem to be

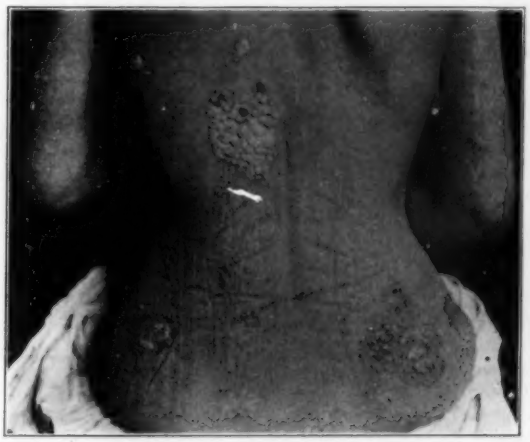


Fig. 1.—Posterior view, showing variously shaped, raised and laminated oyster-shell-like masses.

a contradiction, inasmuch as in these affections excessive production of horny cells is observed, as in psoriasis. But when we examine the scaly heaps more closely, we will find a lack of cohesion in their component parts. They form friable, greasy masses, as in pityriasis of the scalp, eczema seborrhoicum, etc. There is an abnormal moisture of the transitional layers present; i. e., between the prickle and epidermic cells, which in their upward move become only imperfectly cornified. This intensified moisture (edema of the granular layer) causes a disappearance of the keratohyalin granules. Through their absence a persistence of the nuclei results instead of their normal degeneration, as seen in normal cornification. If we add to these findings the incomplete formation of keratin, which causes the cells forming the scales to be only very loosely united to each other, allowing air, serum and leukocytes to collect between them, we have a well-defined pathologic entity before us when we speak of "parakeratosis" or imperfect cornification of the epidermis.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Bloch, Iwan: Die Praxis der Hautkrankheiten, Berlin, 1906, p. 30.

As a prototype of parakeratosis, psoriasis serves best as a well-known example. It may be defined most concisely in the words of Macleod:[2] "Psoriasis is a slight edema of the epidermis with imperfect cornification." Another example of imperfect cornification is the seborrheic eczema of Unna; here the edema of the prickle-cells, however, is far more pronounced, and the scales are less abundant and thinner.

Besides these well-known representatives of imperfect cornification, two more rare affections have been described by Unna under the name of "parakeratosis scutularis" and "parakeratosis variegata." Of the latter affection, although of rare occurrence, several cases have been described, with an already voluminous mass of literature existing. Of the former one, however, very little is known up to the present time. The only mention in the literature that I can find is by Besnier, Brocq and Jaques,[3] and by Tomasoli.[4]

The case which makes the topic of this paper is similar to the one which Unna[5] published in 1890 under the title "Parakeratosis Scutularis." In searching the literature I have failed to find another case which clinically and histologically would correspond with it. Barring an oversight — in which event I would gladly accept correction — I think I may call my case the second one of this rare skin disease. Unlike Unna's case, in which the pathology could be studied only by

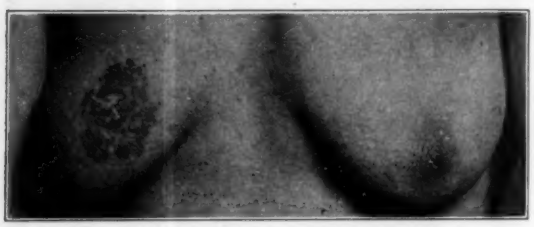


Fig. 2.—Oyster-shell-like formations around and above areolæ of nipples; some detached from left side.

the secondary by-products of the disease, i. e., from the scales and horny cones, in my case a biopsy had been made, which throws further light on the histology of this hitherto only partly described dermatosis.

History.—A. M., a Russian girl, aged 18, a waist-maker, appeared at my class in the German Poliklinik with a skin affection which at a glancing examination conveyed the impression of a psoriasis. On closer search, however, this diagnosis was abandoned. Patient had this affection since childhood and never as yet had gotten rid of it entirely. Different medicines and blood-purifiers were of no use. All the body functions were normal, also the urine. The scalp, forearms and legs were clear. Patient had a dry skin, and exhibited on the extensor surfaces the condition of keratosis pilaris and spinulosus. The oyster-shell-like formations to be described did not itch much and seemingly gave rise to no complaint.

Examination.—At that time we found scattered over the surface discrete, larger and smaller, variously shaped, whitish and yellowish, laminated and raised masses. The majority of the lesions were situated on the back, the sacral region and the lateral aspect of the upper portion of the thigh and upper arm (Fig. 1). There were also two large lesions around the areolæ of both nipples (Fig. 2). The lesions were dry and there was no surrounding inflammatory zone. On removing one of these masses it was found that its architecture showed an oyster-shell-like appearance with a convexity, one-third to one-half of an inch in diameter and in height and about one inch in length. There were also smaller ones present (Fig. 3). The peripheral margins of these hollow shells were tapering and fastened to the surrounding skin in a cupping-cup-like manner. To detach them, the skin had to be pressed down at some point of their border in order to release their hold, as one would detach an adherent cupping-cup from the skin; or their edges would have to be raised with the flat end of a probe. The shells exhibited a laminated structure somewhat greasy to the touch and friable as to their density. There was a veritable vacuum created under these shells. The suction exerted through their airtight adherence was so strong that, after they had been separated, the underlying congested and denuded skin was seen to have been drawn into them like a nipple, or protruding like a miniature crater. The circumference of these lesions showed a deep groove corresponding to the place where the borders of these shells were fastened to the skin. The under surface of this peculiar formation was hollow and curved. Through slightly projecting septa some of the shells were divided into two or three shallow compartments. The innermost layer of the hollow cup consisted of a yet partly succulent egg-membrane-like formation as

Fig. 3.—Shells picked off and mounted to show upper surface. Convexity over one-third of an inch in height and about one inch in length. Also smaller ones.

the roof, which evidently had not undergone cornification. In pulling off the shell, this latest product of papillary edema and imperfectly cornified horny cells would in some places yet be found adherent to the skin forming a pellicle. This membrane could easily be detached, exposing a turgescent hyperemic surface, showing an oozing of a lymph-like, viscous secretion. The thorn-like, horny cones mentioned by Unna as protruding into the hair-follicles from the under surface of the shell-like mass were not so numerous as in his case. Where present it shows that they are the results of sebaceous and epithelial plugs protruding from the patulous glandular ducts (Fig. 4). As they rise upward they become fused to the preexisting hollow shells already mentioned. Through continued pressure from the newly formed sebaceous material within the follicles, or probably through acanthosis, they are forced against the innermost layer of the cup or horny shell, to which they adhere with a broader base. In detaching the hollow shell from the skin these plugs become separated from their follicular openings and appear as thorn-like projections, as if produced from the under surface of the hollow shell. In my case I could not observe, as Unna states, that each horny cone as a rule contains several hairs which project one above the other. Here the hairs were curled up in the shell (Fig 6). I am also of the opinion that it is not the wax-like horny plates which mat the hairs together, but contrarily,

2. Macleod, J. M. H.: Practical Handbook of the Pathology of the Skin, London, 1903, p. 97.
3. Besnier, Brocq and Jaques: La pratique dermatologique, Paris, 1900-1901.
4. Tomasoli: Giorn. ital. d. mal. ven., 1891, p. 277.
5. Unna: International Atlas of Rare Skin Diseases, 1890, plate viii.

the hairs hold the shell together, the same as hairs do in mortar.

The bacteriologic examination was negative. The only growth obtained was the *Staphylococcus albus*. No fungi were found.

The histologic examination of portions of the skin removed showed the following: the horny layer of the skin missing, and the plugs pulled out of the hair-follicles; small round-celled infiltration into the papillæ thickening of epithelium of the hair-follicles and showing distinctly inflammatory products; infiltration into the papillæ and subpapillary zone surrounding the hair-shaft (Fig. 5); moderately dense infiltration of areas from which these plugs had been removed; no apparent change in the deeper tissues. There were also found, as will be seen by the photomicrographs, dilated lymph-

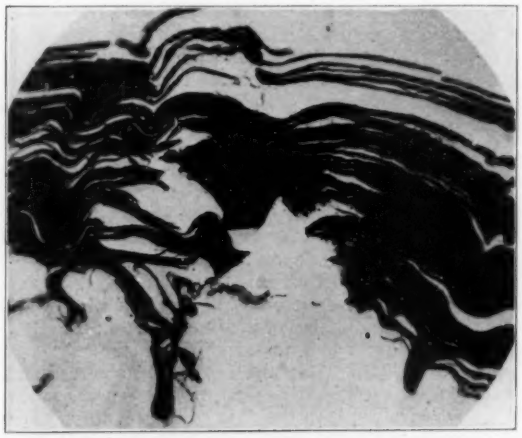


Fig. 4.—Section of shell, showing plugs that fit into hair-follicles; also curled-up hairs. Note laminated structure of shell. The thorn-like horny cones fit into the follicular openings of Figure 5.

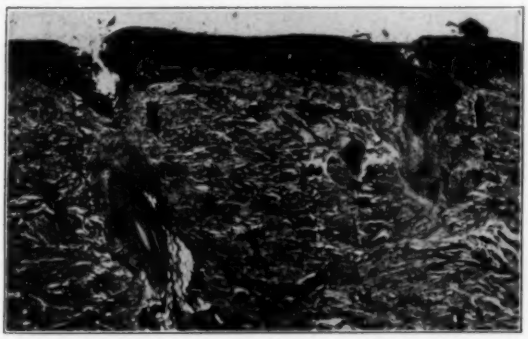


Fig. 5.—Shows horny layer missing and plugs pulled out of hair-follicles. Infiltration into the papillæ and subpapillary zone extending down to hairshaft.

channels in the subpapillary layer. Some of the rete cells retained their nuclei, indicating imperfect keratinization. The marked excrescences after removal of the shells are shown to contain lengthened, narrowed or widened papillæ, while in other places they were almost wanting.

Differential Diagnosis and Remarks.—The hollow horn-shields are so unlike anything else as to rivet the attention of the observer at once. The difficulty of diagnosis lies in the unusually rare occurrence of the affection. As mentioned before, a glancing observation would put psoriasis to the fore. The presence of differently sized scales would suggest it to a very casual observer. But the dermatologist with his accustomed inductive observation will at once entertain doubt as to its correctness. Psoriasis does form accumulated scale-heaps but rarely, if ever, hollow shells of rupia or oyster-shell-like formation. In scratching the psoriatic papule the lesion will show minute bleeding points due to damage to the dilated papillary vessels, but never any moisture or oozing; and when this is exceptionally present, it would indicate a seborrheic complication, a seborrheic psoriasis, which is already a border-line affection. The under surface of the scales, often imbricated, never forms the thorn-like projections of the disease in question and does not contain sebaceous material or coiled-up hairs. As to pityriasis rubra pilaris, Devergie, which is an affection of the pilosebaceous follicles, we find a hyperkeratosis supervening, appearing as small reddish acuminate papules and small horny spines pierced by a hair. The affection is a grave one and usually involves the entire surface. Neither is there confusion possible with keratosis pilaris or lichen spinulosus, a trivial affection, producing small epidermic elevations without crusts or shell formation.

In resuming, my conclusions are similar to those of Unna, who says: "We have here to do with an anomaly of cornification 'parakeratosis' which attacks the body in groups and is combined with slight superficial inflam-

Fig. 6.—Curled hair in the shell.

matory phenomena which extend deeply down into the attacked follicles and produce peculiarly formed cones. . . . The disease has no marked influence on the general health, takes a chronic course and is resistent to treatment. It belongs, like all parakeratoses, probably to skin affections due to some unknown microorganism."

But in some points my conclusions are somewhat at variance. The pathologic picture of my case, while corroborating the findings of Unna as to imperfect parakeratosis and follicle involvement, differs from his in so far as I have found infiltration in the papillary and subpapillary region accompanying the hair-shaft. In other words, instead of having a plain parakeratosis with only slight superficial inflammation, we have quite a marked subacute and low-grade inflammation of those deeper and subadjacent malpighian papillary layers. This picture eliminates the contention of Unna — who has so classically described his case — that this affection is of microbic origin, but proves rather a deficient keratinization of a hitherto unknown origin.

Although not of great consequence, I should suggest the adjective "ostracea" instead of "scutularis," which

I think would describe the appearance of the hollow shells far more concisely.

Before closing, I take great pleasure in extending my sincerest thanks to Dr. Henry Kreuder of New York, for his help in preparing the microphotographs and histologic examinations.

42 West Ninety-First Street.

ABSTRACT OF DISCUSSION

DR. JOSEPH ZEISLER, Chicago: As having a possible relationship to the case described by Dr. Weiss, I would refer to the frontispiece of McCall Anderson's book on skin diseases, which illustrates a case of psoriasis with oyster-shell-like formation of the scales.

DR. WILLIAM S. GOTTHEIL, New York: I saw the case reported by Dr. Weiss and gave it some little study. It was unusual, and perhaps deserves the separate classification that Unna has given it, but by doing so we may lay ourselves open to the criticism of hyperrefinement of diagnosis based on objective conditions and without any knowledge of the underlying changes. When we recall how a case of psoriasis may change its characteristics during the course of different attacks, we should be less inclined to lay too much stress on small objective differences. We have the lupoid type of psoriasis, and we have seen examples of the oyster-shell-like type referred to by Dr. Zeisler in connection with the picture in Anderson's book. The microscopic changes in psoriatic lesions are not very marked, and while we may call a case of the kind described by Dr. Weiss parakeratosis scutularis, it may after all belong to the great class of psoriasis-like affections, simply differing a little in its external appearances.

DR. W. B. TRIMBLE, New York: I have never seen psoriasis with cup-shaped crusts coming on in this way and showing this oyster-shell formation. This desquamation *en masse*, with the crusts markedly concave on one side and convex on the other, is a very peculiar feature. In these and other respects the case seems distinct from psoriasis.

DR. A. RAVOGLI, Cincinnati: I can recall two cases which in many respects were similar to the one described by Dr. Weiss, but which I regarded as cases of giant or rupiform psoriasis. In these cases there were thick crusts, not unlike oyster-shells, and under the microscope a piece of the affected skin gave the characteristic picture of psoriasis. The picture given by Dr. Weiss consists also in a hypertrophic condition of the papillæ, with infiltration of the papillary layer and corium, with the hair follicles showing a great proliferation of the epithelial cells; the whole picture is not very different from that seen in psoriasis.

DR. L. DUNCAN BULKLEY, New York: I have seen cases similar to the one reported by Dr. Weiss, and I recall the illustration in Anderson's book. By careful study of cases like this we may in time prove that we have to deal with a distinct disease, just as eczema seborrhoicum was found to be distinct from ordinary eczema and psoriasis. I think the time has come when we should cut off from psoriasis some of its supposed belongings, and I quite agree with Dr. Weiss that the case he has described is in many respects different from what we have hitherto recognized as psoriasis.

DR. LUDWIG WEISS, New York: In studying this case, I was well aware of the fact that in many respects it was very similar to psoriasis, and while I do not feel inclined to augment the nomenclature of dermatology, I am by no means convinced that the case described in my paper should be classed among the psoriatic affections. I have seen the rupoid form of psoriasis which is illustrated in the frontispiece of Anderson's book, but in those cases we do not find the hairy plugs that were present in my case. In this case, too, the oyster-shell formation of the horny epithelium, the involvement of the hair follicles, and the absence of moisture when the crusts were removed served to differentiate it very sharply from psoriasis, eczema or eczema seborrhoicum, nor could it be mistaken for the impetiginous forms of eruption in which the crusts covered pus and effete material, and until further studies elucidate the nature of the lesions, I shall be inclined to regard this case as different from psorias, and call it parakeratosis scutularis.

FURTHER EXPERIMENTAL AND CLINICAL WORK BEARING ON THE VALUE OF LANE BONE-PLATES *

WILLARD BARTLETT, A.M., M.D.
ST. LOUIS

There are still many finer details regarding the results of treatment of fractures by means of the Lane plate which we have overlooked. There are still many questions, and questions of great significance, which are as yet unanswered. Ever since Mr. Lane first demonstrated to us that here, at last, was a means of treating a fracture more accurately than external splint or cast could ever do, ever since he first showed us results which had existed previously mainly in the ideal, we have been so engaged in skepticism, or in trying to grasp the larger more important points of treatment and result, that we have left unsolved those less easily discernible. There are questions pertaining to the infection of these wounds which we have not answered. The riddle of the after-treatment nags at us constantly. There are many interesting histologic factors in the process of healing which the microscope, as yet, has not revealed.

Up to the present time, I have had seventy-two opportunities to treat the human being by means of the Lane bone-plate. Of these thirteen were on the tibia, fifteen were on the femur, fifteen were on the humerus, six were on the clavicle, three were on the fibula, nine involved both the tibia and fibula (of which one was on the fibula, seven on the tibia and in one instance the plate was applied to both the tibia and fibula), two were on the olecranon, four were on the ulna, one was on the radius, and three involved both the ulna and the radius (in one instance the plate was applied to the ulna; in another instance to the radius and in the third to both ulna and radius). Moreover fifteen of these seventy-two cases were compound fractures, and in four of the open fractures the plate was implanted in a suppurating wound. I do not go more fully into my clinical results here, since this is a purely experimental article, and since the clinical data can be found, at least in part, in two papers.[1]

In the paper which I read before the meeting of the American Medical Association in Los Angeles last year, I gave my conclusions on a series of experiments performed to determine the force needed to dislodge thirty-four screws, half of them infected, from the long pipe-bones of dogs, at intervals varying from one hour to seventy-one days. My conclusions were that it requires but 41 7/9 pounds to dislodge an infected No. 3 screw from a dog bone, with a cortex of 2 mm. On the other hand a pull of more than 95 pounds was required to draw the average clean screw of No. 3 gauge from bones of about 2 mm. cortex. The corresponding human bones have a much thicker cortex; moreover, No. 5 and No. 7 screws are used, which are much larger in every dimension, to say nothing of the fact that as many as ten of them are embedded at one time. It does not

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Surgical Laboratory of Washington University.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

1. Bartlett and Hewitt: Experimental and Clinical Work to Determine the Value of Lane's Bone Plating, THE JOURNAL A. M. A., Oct. 21, 1911, p. 1347; A Discussion of the Operative Treatment of Fractures Based on the Operation of Eighty Patients, Am. Jour. Surg., January, 1912.

require much mental effort to picture the great amount of force needed to tear such a plate out of an aseptic wound when freshly applied, provided only it has been correctly applied, that is, by means of a drill the size of the screw-barrel with the screw threaded to its head. Moreover, it was pointed out that, while there is a constant absorption of bone cortex around infected screws and a thickening around this area, on the other hand a clean screw and the bone in which it is embedded present no macroscopic reaction whether viewed when inserted or seventy-one

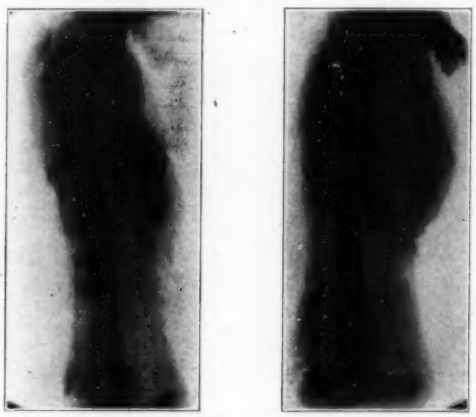
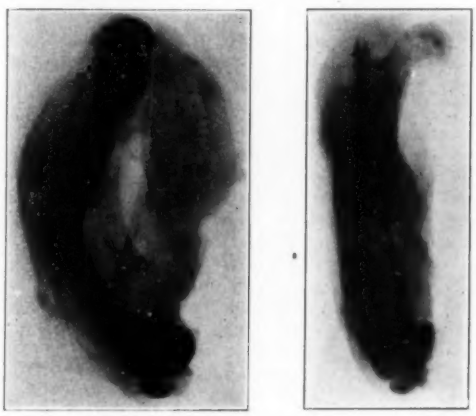


Fig. 1.—Experiment 4. Union of left tibia. Nine days after operation.

Fig. 2.—Experiment 4.—Nine days after operation. Right tibia left unsupported as a control.



Figs. 3 and 4.—Experiment 7. Seventeen days after operation. Left femur. No attempt at union.

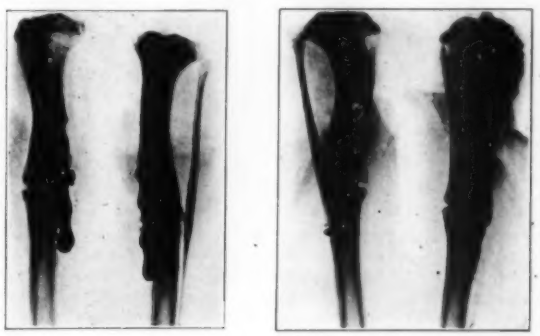
days later, unless infection takes place. In the experiments here described the screws were not observed under actual working conditions, since there was no pull or other external force acting on them during the healing process, as is the case when the Lane plate is used in the human being.

The primary object of this paper is to determine what happens when plates are screwed to fractured dog bones and the animals are allowed full freedom, without splint or bandage. The secondary object is to make a microscopic study of the process of healing under such circumstances.

The librarian of the St. Louis Medical Library worked for half a day hunting for some account of animal experiments with the Lane plate. His efforts were practically futile. Dr. Edward Martin,[2] however, gives a hint that some experiments have been performed. It is possible, of course, that experimental articles along this line may have been overlooked owing to their having been published under an unusual caption. No doubt, there are surgeons who are performing animal experiments with a determination to solve the same questions that I am trying to solve. My point is that I do not know of them.

The plate used in these experiments was a four-screw Lane plate, made of Jessup tool steel. It is 4.1 mm. long, 0.8 mm. wide at its widest part, narrowing down to 0.3 mm. between the middle screw-holes. The distance between the middle screw-holes is greater than between the middle screw-hole and its corresponding end screw-hole. It is 0.1 mm. thick. The screws used are No. 3 (3/16 inch) wood screws. These plates are cut

Fig. 5.—Experiment 8. Twenty-seven days after operation. Malunion of the femur.



Figs. 6 and 7.—Experiment 9. Thirty-two days after operation. Union in case in which both tibias were plated.

with file and emery wheel, and the holes are drilled and reamed. As a matter of course, full morphin and ether anesthesia was used in every instance.

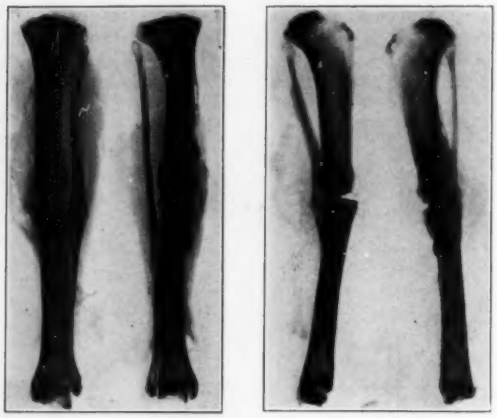
No dressing was used on any of these wounds, and in no instance was a splint of any kind used to support the legs. It was, as already stated, the primary object of these experiments to observe what happens when the leg is left unsupported without splint or bandage. Great care was exercised when using the tibia that the fibula might remain intact to operate in very much the same manner as does the external splint when the Lane plate is used in the human body. In four of the animals, the

2. Martin: The Open Treatment of Transverse Fracture of the Femoral Shaft, Tr. Am. Surg. Assn., 1911, xxix, 62.

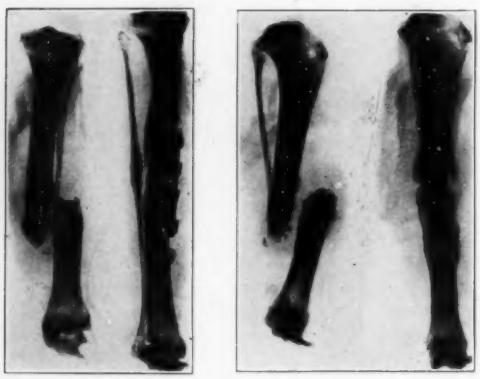
tibia of the opposite leg was broken in exactly the same manner, but left untreated with a plate for the sake of comparison; while in a third series, in four dogs, the femur was fractured and plated in order to ascertain the absolute value of screws and plates when no support of any kind is at hand.

In each instance the leg was amputated at the joint above the site of operation, extreme care being observed in the handling in order that no artificial dislodgment of screws might take place. The extremity was then placed in 4 per cent. dilution of liquor formaldehydi and *x*-rayed before being dissected, as a further guarantee against displacement of the fragments. After removal of the soft parts, the segment of bone covered by the plate was exsected and the screws carefully unscrewed. The specimen was next decalcified and prepared for histologic examination in the ordinary way, the sections being made in the longitudinal direction.

The most extreme asepsis was used in these experiments. In most of the instances the skin was shaved and treated with soap, alcohol and mercury bichlorid, and was carefully protected with towels clamped to the edge of the incision. Perfect hemostasis was employed, and the wounds were sewed up in two layers, one being in the muscle sheath and the other in the skin.



Figs. 8 and 9.—Experiment 10. Thirty-four days after operation. Left tibia plated. Right unplated.



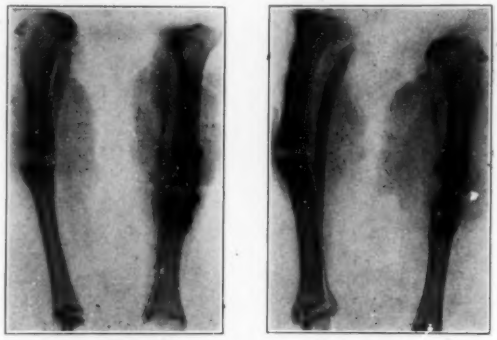
Figs. 10 and 11.—Experiment 12. Thirty-nine days after operation. Left tibia plated, showing necrosis of the shell of the bone. Right unplated.

SUMMARY

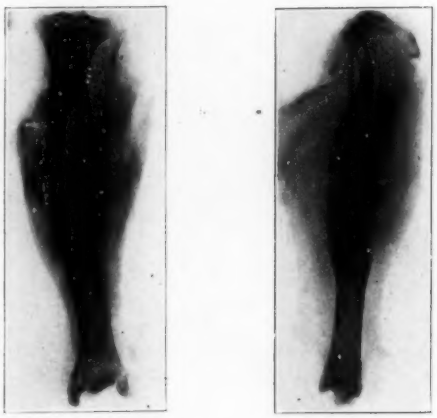
Fifteen dogs were operated on. One died of ether. From a second no specimen was saved on account of failure to plate it satisfactorily. A third animal was lost, after five weeks observation.

Proceeding now to a more detailed study of final results of these operations, there is a record of thirteen plates to follow, even though there were only twelve dogs, for in one dog a plate was screwed to both tibias. The plate remained fastened to both fragments in twelve cases, in spite of infection and in spite of the fact that the animal was allowed to go without splint or bandage. Seven of the plates which were found screwed to both fragments were firmly embedded. Five plates were found to have one or more screws loose (one having all four screws loose, three having two screws loose and one having two screws loose and one screw missing). All, however, with the exception of one screw had to be unscrewed in order to get them out. It is of more than passing interest to note that in no case did the plate come out of the wound of its own accord.

Now as regards union of the fragments, I shall consider the femur and tibia separately, in order to get more accurately at results. In four out of thirteen operations I put a plate on the femur. One of these resulted in



Figs. 12 and 13.—Experiment 13. Sixty-five days after operation. Left tibia plated, and right tibia unsupported. Fibula, in both cases, intact.



Figs. 14 and 15.—Experiment 14. Seventy-six days after operation. Union of left tibia.

mal-union, which, however, when the animal died twenty-seven days later, was firm. In another one of these when, after seventeen days, the dog died there was a soft union, and in the remaining two, after a period of three and seventeen days, respectively, no union had resulted. The remaining nine plates were put on the tibia. In five of these the union was solid; in two there was no union and in two the union was not quite firm. It is significant, however, that three of these tibias which did not show union were in dogs in which the opposite tibia had been broken and then left unsupported, and the other was a case in which the dog died of sepsis after nine days, and, consequently, union had not had time to take place. In other words, in every case in which time enough was given and in which the opposite tibia was intact, so that the animal could walk on it, union of the plated tibia had taken place.

Marked mal-union occurred in only one instance (a femur). In another instance, in which a plated tibia had its opposite tibia broken as a control, both legs were in slight genu valgum.

In four experiments on the tibia, the opposite tibia was broken and then left unsupported as a control. In the first instance, the dog died of sepsis nine days later. Both wounds were open and infected; the plated leg was as perfect as could be expected in so short a time, and the control was fairly movable at the point of fracture. In the second instance, after thirty-four days, the union in the control as well as in the plated leg was solid and both wounds were nicely healed. In the third instance after thirty-nine days, crepitus could be elicited from the plated leg, which also showed signs of pus and little or no callus. The control had a flail joint and the operative wound was healed with no callus to speak of. In the fourth instance, both the plated and unplated leg were in mild genu valgum, sixty-five days after the operation. The position of both, however, was fair. In the plated tibia the union was not quite firm, while the control had healed firmly. There was a large callus on both. These four comparisons admit of no obvious conclusions.

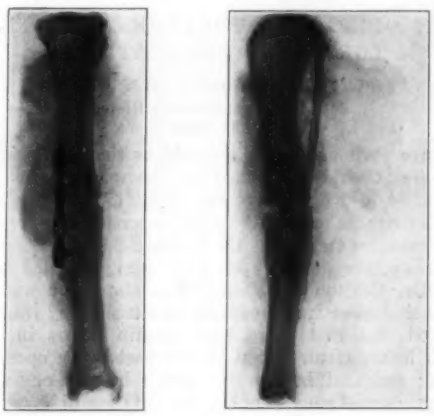
The technic used in Experiment 9 is, to my mind, the most nearly ideal. It will be remembered that, after the holes were drilled, the bone was sawed partly across. In this operation, however, after the first hole was drilled, I drove in one screw to hold the plate as a pattern for the other screw-holes, and later removed the plate to saw the bone. One who is accustomed to handling the instruments in a Lane-plate operation can take this step without any great loss of time, and when, later, one sees how beautifully the plate rests on the bone and how truly the screws are sent home, one feels that this extra precaution has been worth while.

In making a histologic examination of the process of healing, under the conditions to which the bones in these experiments were subjected, it is seen that in most instances union took place by indirect bone formation rather than direct; that is, cartilage was formed in the first stages of healing, which in turn changed to bone. Furthermore, it was observed that in its efforts to accomplish the repair, an internal callus had formed about the point of fracture, until it had completely filled the medulla, to say nothing of an external callus as extensive as one ever sees in the absence of the internal splint.

In no instance was a screw or plate found directly in contact with the bone, there being always much intervening granulation-tissue or fibrous connective tissue around the screws and plate. Hence, one cannot properly say that a screw does or does not hold in a bony socket. In the course of time bone in contact with metal disappears. In spite of this, as shown by my earlier experiments, screws do hold remarkably well, even in infected wounds in many instances.

In all, fifteen dogs were operated on, and of these one died of ether before the wound was sutured. Three of the remaining fourteen were found perfectly healed when the animals were killed and eleven are known to have become infected as a result of the operation. Then of the last eleven one was lost, having been last seen five weeks after the operation, and another died after six days of post-operative hemorrhage. Five more of the dogs, which are known to have been infected, died of sepsis within twenty-seven days. Nearly all of my experimental wounds are thus seen to have been infected; possibly all of them have been. I did not see the dogs every day, and hence judge this point largely by terminal results.

In my earlier work, I found that infected wounds do heal completely in many instances; hence it is not possible to say that the three healed wounds containing plate and screws have not been infected and healed up completely, in spite of this.



Figs. 16 and 17.—Experiment 15. Union of left tibia, 147 days after operation.

The experiences gained from these experiments naturally apply most directly to infected fractures on the human being. It is of interest, therefore, in this connection to relate that I have put a Lane plate in a suppurating wound on a human being four times. This was done, in each instance, in the treatment of displacement of a compound fracture.

The first patient had the tibia involved; the operation was done a year ago, and he now walks without support of any kind, the plate having been removed a few months since.

The second patient was operated on a little more than three months ago. The humerus was the bone involved and the patient now has a perfectly solid union, with the plate still in place, and is at work as a teamster, in spite of a small granulating wound.

The third patient was operated on three months ago, the ulna being treated. The plate is still in; there is solid union and a fistula persists, which will, no doubt, lead to the removal of the plate. The radius, which was broken at the same time but not plated, is still ununited.

The fourth patient was operated on almost three months ago. Here the fracture was so low down on the tibia that I could not, on account of thin cortex, find

anchorage for the lower screws, and had to give up the attempt.

It speaks well for the future of such cases that I have had three successful results in my only three favorable cases. These patients developed no serious reaction after the operation, which I believe is due, in part, to the fact that the wounds were flooded with tincture of iodin as soon as the very conservative dissection was completed, and packed with gauze after the plate had been applied.

If any clinical conclusions can be drawn from my dog experiments, and from my results on the human subject, I should say that the bugaboo of infection, however undesirable in connection with the use of the Lane plate, would seem to a certain extent to be ill founded. This factor *alone* does not greatly influence the outcome, so far as bony union in a desired position is concerned, granted only that proper wound toilet be employed to prevent a general systematic infection, and that the plate be used with the somewhat trivial proviso that it may have to be removed later.

Metropolitan Building.

THE OPERATIVE TREATMENT OF FRACTURES AND DISLOCATIONS *

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NEW YORK

Three years ago, Mr. Lane told us that practically all fractures should be treated by the open method, and that if we did not accept this point of view the courts would drive us to it. At the same session I reported on 200 fractures treated at the Roosevelt Hospital by open operation, the majority of them being handled by the late Dr. Carlton P. Flint. The statement was then made that most fractures were best treated by the closed method, but that there were certain others in which much better results could be obtained by an open operation; and that in order to decide best in any special instance a vast amount of clinical data would be required. We are now in a better position to meet this problem, for the amount of operative fracture work that has been done in this country and abroad, during the last five years especially, has been enormous; and we can now better see our limitations — what we can accomplish by this means and what we cannot and also who should attempt it.

In the last two years 2,100 fracture patients have applied to the Roosevelt Hospital Emergency Ward and of these 104 have been operated on. This, I believe, indicates fairly well the proportion of suitable cases, that is, about 5 per cent.

The question of operation, however, is not limited to whether or not it is wise to cut down on a fracture and put on a plate, but covers a larger field, and operations of this class can be divided into four groups:

1. Open reduction of recent cases.
2. Open reduction of old cases.
3. Operations in which we do not attempt a reduction, but by some other means try to prevent or overcome the deformity or impaired function resulting from fracture or dislocation.
4. A fourth group should be mentioned to include the forms of treatment in which appliances are inserted into the bone at a distance from the site of fracture and allowed to project through the skin — such as the nail extension of Codavilla, Steinemann and Lambret, the clamps of Parkhill, Freeman and others. I have never tried these and shall not refer to them again.

I. OPEN REDUCTION IN RECENT CASES

Of the 107 operations performed by me, fifty-seven came under the group of recent cases. The indication for operating may be stated thus: If a satisfactory reduction cannot be both obtained and maintained by the closed method, the fracture or dislocation should be operated on, there being no further contra-indication.

A "satisfactory reduction" does not necessarily mean a perfect anatomic alignment. A transverse fracture of the femur or humerus, where merely the edges have engaged, if the alignment is good, we know will give a strong, straight, useful arm or thigh without shortening and often will be smoothed out in time, especially in young patients. Why operate? And yet a slight projection forward of the upper fragment in a supracondylar fracture of the humerus will impinge against the coronoid and limit flexion and should be remedied. A rotary deformity in a fracture of the radius above the pronator teres may look straight and true in the *x*-ray, yet when in our closed attempts by supination the lower fragment merely pursues the upper we should cut down and properly adjust them. Lack of good crepitus always suggests interposition of soft parts and bids us investigate. A satisfactory reduction may be defined then as one in which the increase in the range of motion and the decrease of deformity to be gained by open method do not warrant the risk of operation.

My routine has been never to operate except in self-evident cases, such as patellas and olecranons, until two conscientious attempts have been made to obtain a closed reduction under ether. But some day I hope to be skilful enough to tell in advance by a gentle examination and a good *x*-ray, whether it is worth while attempting this. For too often we see at operation the ravages in the soft parts our heroic attempts at reduction have made, with the destruction of the precious notching and dentation of the fractured ends.

When is the best time to operate? After the body has had a chance to catch its breath following the original injury, after the bleeding has stopped, the cofferdamming commenced and a good healthy reparative reaction begun; but before the muscles have become set, the exudate around the broken ends begun to harden and our clean cut margins rounded off. Avoid too early operations and spare the body a second trauma too soon. Avoid too late attempts in order to prevent a more difficult operation and bad end-results. Somewhere between the fifth and eighteenth days seems the best time, preferably before the tenth.

The details of the operation have been so frequently and so well described as to need no repetition, but two points must be emphasized. First, unless a man is able and willing to develop by laboratory practice and to follow out the extreme and exaggerated technic of Mr. Lane, he has no right to operate on fractures, and this applies to assistants as well as to operator. It is the only way to guard patients from the calamities which seem to hover nearer bone work than any other field of surgery. Second, after obtaining reduction as simple and as little foreign material should be left in the wound as need be — no appliance if possible, chromic catgut if

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* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL by the ommission of the tables of cases. They appear in full in the Transactions of the Section and in the author's reprints.

necessary, and plates and wire only when they are really required.

Of the fifty-seven recent fractures I have reduced by the open method, no appliance was used in twenty-one, simple suture in seventeen, wire in two, and plates in sixteen with one aluminum dowel.

The after-splinting must be as carefully done as if it were a closed reduction. My experience has been that firm union comes a little more slowly in fractures that have been opened. The splint should be applied with the limb in such a position that there is no strain on the plate, for it is the slight continual pull that loosens the screws.

II. OPEN REDUCTION IN LATE CASES

The open reduction in late cases is the most difficult part of the work. The greater trauma necessary to obtain a good reduction, the more frequent need of internal fixation and the less satisfactory results, all point to the need of educating medical men to send the bad cases early to some one who is specializing in this work. This is the strongest argument against the advice that we try the closed method and see what end-result is obtained and if that fails try the open. The decision should be made before the end of the second week if possible.

Thirty of my cases come under this second class. I have classed as *perfect* the end-results in which there is complete return of motion and no deformity; as *good*, those in which there is less than one-fourth impairment of the range of motion (measured in degrees) or only slight deformity; as *fair*, those in which there is considerable limitation of motion or deformity but still a distinct improvement; as *bad*, those in which there is only slight improvement, and as *failure* those in which the patient is no better or even worse.

Of the recent cases, 71 per cent. of the results were either perfect or good (40 per cent. being perfect), and 92 per cent. either perfect, good or fair. Of the old cases 30 per cent. were either perfect or good and 77 per cent. either perfect, good or fair. That is to say, the end-results were much better in the recent cases than in the late ones.

III. CASES IN WHICH REDUCTION IS NOT ATTEMPTED

The third class — cases in which we do not attempt a reduction, but by other means try to prevent or overcome the deformity or impairment of function following fracture or dislocation — seems to have had little attention called to it.

An old case frequently had better be placed in this class. In a supracondylar fracture of the humerus with the upper fragment a little anterior, limiting flexion, it is much better to chip off the projecting lip than to break up the old fracture and try to reduce it. The same holds true in the ankle injuries when the astragalus remains too far posterior. It is far easier to cut away the anterior lip of the tibia and give the patient the added 10° of flexion so that his toe will clear the ground. In the same class belong many of the fractured heads of the radius with displacement of loose fragments; the capitellum fractures; cuneiform osteotomies to correct a faulty alignment of a tibial break, and the removal of the humeral head with dislocation and fracture of the anatomic neck. In early cases, however, an attempt to save loose fragments often will prove successful and early reduction when possible is better than removal. I have recently reduced by open operation two dislocated semilunars with associated scaphoid fracture. In one case the end-result is excellent and the second only fair though better than in two cases in which the fragments were removed. In an old unreduced anterior dislocation of the head of the ulna the lower inch of the ulna was cut away. The bone regenerated and after two months the man had a painless wrist with complete functional return. This was done because in a previous case, similar to this one, an open reduction had resulted in almost no pronation or supination. They were both old cases. Twenty of the present series belong to this class.

In the 107 cases there were three infections. The first was both superficial and deep in a compound fracture already infected at time of operation. The second was a superficial infection occurring in my fifth patient after the third operation on the same case, a very stubborn malunion following a fracture of the lower end of the tibia by eversion and abduction; it healed in three weeks, but the man still has a painful ankle. The third was a superficial infection in a dislocated shoulder associated with fracture of both tuberosities, in which second operation and insertion of the gloved finger in the wound were necessary. It healed in thirty-six days and remained healed. In neither of the latter two cases was there a rise of temperature above 101 F., nor any involvement of the bone, nor were any of the three in danger at any time.

TABLE 4.—ALL CLASSES OF CASES

	Recent	Late	Non-Reducing	Total
Men	47	23	17	87
Women	10	7	3	20
Simple	48	29	19	96
Compound	9	1	1	11
Fractures	49	25	16	90
Dislocations	8	5	4	17
Total	57	30	20	107
Open reduction—				
Without appliance	21	12	..	32
With suture	17	2	..	19
With wire	2	4	..	6
With steel plate	1	..	..	1
With aluminum plate	13	7	..	20
With vanadium steel plate.	2	..	..	2
With aluminum dowel	1	..	..	1
With staple	..	1	..	1
Arthroplasty	..	1	..	1
Removal of loose fragments	..	..	6	6
Cuneiform osteotomy	..	..	2	2
Partial ostectomy	..	..	12	12
Infections, superficial	1	2	0	3*
Infections, deep		0	0	..
Deaths	0	0	0	0
Plate removed	2	1	0	3
Plate bent	2	0	0	2
Staple removed	0	1	0	1
Chromic gut came out	2	1	0	3
Wire removed	1	1	0	2
Perfect results	21	0	3	24
Good results	16	8	8	32
Fair results	11	12	4	27
Bad results	1	2	2	5
Failure results	3	4	1	8†
Too recent	3	0	1	4
Lost track of	2	4	1	7

* Two in clean cases. † All but one had later operations.

There were no deaths. There were ninety-six simple fractures or dislocations and eleven compound. In three cases the diagnosis was faulty, the operation proving unnecessary and merely an open inspection being made.

Three plates were removed, one from the infected compound fracture put in at a second operation — my first plating. The second was removed because it did not hold and the bone was replated. The third was removed as I feared infection after twelve weeks, but found none. Two plates bent and one broke. All were aluminum but the first, which was steel. Two of the six wires were removed, one as the deformity recurred and

a staple then used, the second as it threatened the skin; a third is lost track of and so uncertain. Chromic catgut was extruded at a late date in three cases. The one staple used was removed during a subsequent appendicectomy and found to be firmly imbedded in dense fibrous tissue containing much iron pigment and many giant cells.

Sheet aluminum has been used for all but three plates. This was preferred as it gives almost the right elasticity and they can be readily made in the laboratory to fit each case. My first plate was a Lane steel plate and the last two have been of the vanadium steel type suggested by Dr. Sherman. These seem almost ideal.

My preference is for the ordinary machine screw with preliminary tapping of the drill-hole before inserting the screw. This method is preferred to Sherman's self-tapping screw.

SUMMARY

1. Most fractures are best treated by the closed method.
2. Where a satisfactory reduction cannot be obtained and maintained by the closed method the fracture or dislocation should be treated by the open method, there being no other contra-indications.
3. If an open reduction is done, as simple and as little foreign material should be left in as possible.
4. The decision to operate should be made before the eighteenth day and earlier if possible.
5. In old cases it is often better to do a non-reducing operation.
6. The technic cannot be too exaggerated.
7. An open reduction is a serious operation. It should only be undertaken with clear indications and with the most favorable operating facilities and surroundings.
8. We must not forget also that the open method is not always successful.

47 West Fiftieth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BARTLETT, COTTON, DARRACH AND ELY *

DR. J. B. MURPHY, Chicago: There is no place in surgery where the physician is in greater danger than when dealing with a fracture near a joint, where defects of the slightest degree are of such great importance. We all know that from 85 to 92 per cent. of the deformities following an attempt to reduce a Colles' fracture are the result of faulty reduction. A Colles' fracture once reduced keeps itself in position, and until we have succeeded in placing the bones in such apposition that there is absolutely no deformity when the arm is held out straight, we may rest assured that the reduction has not been effected. We must first increase the deformity, at the same time making extension on the arm, so as to unlock the fragments. When this is done correctly, the hand is extended and the bones just naturally slide into place without deformity or tendency to recurrence.

The same thing is true, in a measure, of Pott's fracture, in which there also is a deformity, usually an eversion of the foot with a forward displacement of the tibia on the astragalus, the result of the tearing of the interosseous membrane and a stretching or tearing of the anterior ligament of the ankle-joint. Unless this deformity is corrected, the result following the treatment of Pott's fracture is a most unsatisfactory one. I have had several cases of Pott's fracture in which it has become necessary to refracture and then to hold the fragments in place by means of wire nails. In refracturing these bones I always go from within outward, so that the ends may better be held in place after the nailing. The reposition of the tibia on the astragalus is equally important, and after that the application of a plaster cast for from four to six weeks will insure perfect healing.

I have had a rather large and unusual experience in the treatment of old ununited fractures in and near joints, and the result in every case has been an excellent one. For instance, a boy, aged 16, sustained an intracapsular fracture of the head of the femur. I saw him about seven weeks after the accident. On opening into the hip-joint I found that the fragment had been rotated, twisting the ligamentum teres, thus shutting off its blood-supply and consequently it was dead. Inasmuch as it was aseptic, however, I felt that it could still be made to serve a useful purpose. I freshened the surfaces of the fracture and nailed this dead but aseptic head on to the femur. What I expected happened. A new head was formed and to-day, about four years after the operation, this young man has perfect function in his hip. He has complete abduction and adduction, with full rotation and a shortening of not more than half an inch. It is almost impossible for us to tell which is the hip that was involved.

DR. JOHN B. WALKER, New York: All of us who were here three years ago cannot fail to appreciate that a vast improvement has been made in the treatment of fracture. Fifteen years ago we had entirely different functional results than we have to-day. We are better satisfied now than we were then. A few days ago a surgeon in a neighboring state received a letter from a railroad corporation for whom he is doing some work, expressing dissatisfaction with his treatment of their fracture cases. The complaint was that he was keeping the patients confined too long. In the fractures of the femur at the end of a year, less than 50 per cent. of the patients are able to return to their work. The papers by Drs. Darrach and Cotton seem to show that operations are easily done and always well done, and it would be a great mistake if this Section were to feel that the technic of the operations has been so simplified and modified that everyone could do fracture work.

A few days ago a physician visiting my clinic asked me where he could get a certain drill, and the bone plates I was using. I asked him whether he had done any of this work. He replied that he had not, but that there was a great deal of it to be done in his community and he thought that he might as well be the pioneer in this line of work. That is wrong. Only the expert should undertake this work. As men become more skilful and improve their technic, more of these operations will be done. Dr. Darrach spoke of 350 operations done in one year, probably as many as had been done in the preceding ten years. The fact that sepsis occurs in a certain number of cases does not modify the fact that in selected cases these operations are necessary. As men become more skilful in diagnosis they will be better able to select those cases in which an operation should and may be done, and the results will be correspondingly improved. It has been found that if extension does not reduce a fracture of the humerus or femur in ten days, it will not accomplish much after that. The muscles will contract then. I have had twenty-one cases of fracture of the femur, none operated on under ten days. Most of them were old cases in which there was considerable shortening with angulation and overriding. In every one of these cases it was necessary to remove the Lane plate. I was somewhat alarmed when the wound became superficially infected, but when I cut down on it it was not infected. It was very difficult to remove the screws.

DR. J. E. MOORE, Minneapolis: We must not lose sight of the fact that the knife is the greatest conservative agent at our command. It is only its abuse that becomes anything but conservative. Conservatism should be the keynote in all surgery, but it is particularly necessary here. It looks so easy to the tyro when the expert places a Lane plate on a fracture. He is apt to be carried off his feet and try to do likewise. That is dangerous. We are called in consultation by younger men quite frequently, and usually the first question asked is, whether the case is one for operation. It seems to me that we owe it to the patient and to the profession as well as to ourselves to ask who is to do the

* The papers of Drs. Cotton and Ely appeared in THE JOURNAL July 20.

operation. The general practitioner calls us in for the purpose of finding out whether an operation is advisable. If we think it is, it is our duty to find out who is to do the operation. If he is not competent to do the operation, but intends to do it, our advice should be against operation. If, on the other hand, he wishes to have a surgeon of repute operate, then we can decide safely on the merits of the case. We all know that the steel plate must sometimes be removed, but I consider it the best mechanical device at our command. I have removed it a number of times, sometimes after my own operation, and sometimes after others, but in every instance I have found firm bony union, so that the plate had done its work. The mere fact that it had to be removed did not militate against its work. I always inform my patients beforehand that it may be necessary to remove the plate, particularly when the bone is near the surface, like the tibia. We must caution our patients and other surgeons that even after operation the results are not always good. I would sound a note of warning to the younger surgeons who are just beginning this work. That is with reference to compound fracture, in which we need a steel plate worse than anywhere else. Infection is only a relative term. But a wound may be said to be infected when the number of bacteria present is so great that the resisting powers of the tissues cannot overcome them. We never have an aseptic wound; there are always bacteria present, but Nature may be able to control their virulence; sometimes it cannot do so. Therefore, when we insert a plate and infection occurs, it is not the fault of the plate, but of the tissues. When you introduce a plate, you are introducing a foreign element which lowers the vitality of the tissue. In a compound fracture in which the tissue resistance is already lowered considerably, the insertion of a plate will not help matters, and in these cases we more often see an infected wound than in a simple fracture when a plate is inserted or a compound fracture with no plate inserted.

DR. A. J. OCHSNER, Chicago: Dr. Darrach has demonstrated that the aluminum plate is worthless. It does no more than the steel plate; in fact, it is not as good, and the two cases of broken plate which he reported should condemn that plate or any other plate that has ever been used, except the steel plate. Eleven years ago Dr. Ruth reported before this Section the method devised by Dr. Maxwell for the treatment of fractures of the hip. Since then I have used this method in all of my cases. I have anesthetized the patient in order to determine the fact that there was contact of the fragments; then made the downward extension and inward rotation with the pulley and extension described by Dr. Ruth, and union was invariably the result. What does that mean? It means that that is the method that should be employed in these cases; and why? Simply because it gives you confidence that there is contact of the surfaces. You must obtain that in order to get good union. If I had had cases like Dr. Murphy showed us, I would not have had union, but in 100 cases in which I had contact I did have union, and if Dr. Cotton will follow that he will have union in his cases.

Dr. Bartlett's experiments are absolutely worthless, because he did not establish the very things that must be established if we would make a test of Lane's plates; that is, a test that amounts to something. If you want to use Lane's plates, you must get an absolute apposition, and you must then fix the extremity precisely as you would fix it if you had not used the plate. That, in a measure, was accomplished where he used the fibula, but not to a satisfactory extent. Then you must do not only an aseptic operation, but you must maintain aseptic conditions afterward. Then, too, in order to make these experiments valuable, these bones should have been skiagraphed from week to week to determine what was going on all the time. Of course, these experiments did determine one very valuable point. They demonstrated that if one does not use Lane's plates properly, things go wrong.

DR. FRED H. ALBEE, New York: About four years ago I published an article containing reports of some cases in which there was a rolling up anteriorly of the head of the bone (*Post-Graduate*, June, 1908). Why does the head roll up anteriorly? Because the epiphysis of the shoulder is different from that of any other bone in the body. It has muscular attachments, several of them, and on account of its being a sphere in a slippery joint-cavity its position is absolutely controlled by their pull, which is upward and forward. This is also true, but not to so marked a degree, in high surgical neck fractures. Splints and traction have no effect on this fracture, because none of the muscles attached to the epiphysis come down the arm. The mechanical conditions and indications of treatment here are absolutely analogous to those of abduction and flexion used in the case of subtrochanteric fractures of the femur. About thirty years ago Dr. E. M. Moore described how he was able to reduce these fractures efficiently by elevation of the arm, but he stopped there and attempted to fix them always with the arm to the side. He described several cases in which he had to excise the head of the humerus because he was unable to retain the reduction. The above position of elevation anteriorly, relaxes the displacing muscles and therefore the proper alignment of the fragments is easily maintained. As to pseudo-arthrosis, from much experience and observation I feel that we cannot trust the Lane plate in these cases, especially those of intra-uterine origin. I saw a case recently, which had been operated on four times. The fragments had been wired, the Lane plate had been used, and still there was failure of union. The method I have used has been to inlay a piece of bone taken from the patient's tibia. The fragments are freshened, as in any other operation, and then the bone is inlaid or mortised into the fragments just through the cortex on one or two sides, as necessary. Why is it that these pseudo-arthroses do not unite? Because the bone-forming cells are buried in an overdeposit of calcium salts in the ends of the fragments. The histologic process is similar to that occurring in an old hypertrophic joint (osteo-arthritis) and union is slow or never takes place. The piece of bone removed from the tibia is inlaid and acts as an osteogenetic bridge placed into the fragments and extending beyond the ebonated area in each and at the same time furnishes a reliable means of fixation of the fragments. The conditions for immediate bony union are most ideal, because the periosteum, compact bone, endosteum and marrow of the bone graft all, respectively, come into close apposition with the same structures of the recipient bone fragments.

DR. A. MCGLANNAN, Baltimore: We have come to believe that fracture of the shaft of the femur in young adults should be treated by open operation, because this gives a restoration of function in a much shorter time than any other method of treatment. The operation must be performed as Lane described it, following all of the details of his technic, if one is to obtain good results. The difficult portion of the operation is in securing proper traction, and here I think I have added one valuable point to the technic, namely, making traction by the use of direct extension. I pass a long drill through the lower end of the femur just above the condyle, and traction is made by means of a roll of gauze wound around the ends of the drill, the pull being made from in front. If made from behind, there is danger of injury to the vessels. By this means I can pull down the fragment with less force, and more effectively, than by any other means. The final point in this method of treatment of fractures is the dressing after the plating. All I do for a closed fracture must be done for an open fracture. Fractures of the hip I have not opened. I have now thirty-eight cases, twenty-six of which were treated and twelve were not treated because of the physical condition of the patients. Whitman's method in wide abduction was used, carrying the plaster cast to the middle of the thigh on the sound leg, and from the toes to the nipple line on the fractured leg. These patients are very comfortable, more so than with other methods of treatment. The results have been very successful. Non-union from interposition of the soft parts has not occurred in any case.

DR. THOMAS W. HUNTINGTON, San Francisco: It is to be understood that the operative treatment of fractures is only to be adopted after persistent efforts at conservative treatment have been proved to be without avail. Those wedded to conservatism in fracture treatment manifested slight inter-

est in the more radical method until a few men began to express dissatisfaction with the general run of results, as shown in earlier times. My dependence is on the *x*-ray findings rather than on the so-called clinical methods of diagnosis. With regard to technic it is to be insisted that what one man can do uniformly well, another man cannot do at all, and the latter does not need very wide experience to prove that he cannot do this work well. I am not insistent on the value of one or another material or appliance with which to secure fixation. I emphatically do not concur in the statement that the Lane plate is the *sine qua non* in the operative treatment of fractures. If I use a Lane plate, I select the smallest one possible and I employ the staple more frequently than the plate. It is to be insisted on that neither the plate nor any other fixation appliance is, in any sense, a splint. Axial relation is not to be maintained by fixation material. The function of fixation material is closely analogous to the stitch in the garment. The main thing to be accomplished by the staple or plate or wire or nail is temporary fixation. Subsequent alignment is to be maintained by a properly adjusted plaster-of-Paris dressing. In fractures of the thigh, after the introduction of a plate or staple, the limb is to be immobilized by a plaster spica extending from the short ribs to the foot. As soon as the plaster is hardened, I find it advisable to remove the entire roof of the plaster dressing from the toes to the waist, allowing the patient to lie in the trough which is made up of the posterior segment of the original splint. This gives splendid opportunity for maintenance of nutrition of the limb and immediate access to the seat of fracture. The advantages flowing therefrom are perfectly obvious. I am going to make a propheey, that, within the next twelve, eighteen or twenty-four months, we are going to hear less said about placing foreign bodies in infected fractures. You might as well try to drive bedbugs out of a log cabin as to attempt to sterilize an infected wound at one or several sittings. Suppose you have an infected wound and you have adjusted the fracture accurately, and have used every possible effort to disinfect the wound, there is one place where we cannot be sure of having secured asepsis, and that is, between the fragments, the most important point. You have shut up the infected material in a closed cavity and produced a condition which is productive of disastrous results. In the future, we will sacrifice axial relation rather than attempt to complicate the case by the introduction of a splint in a permanently infected bone cavity.

Dr. Willard Bartlett, St. Louis: I never fail to profit by Dr. Ochsner's criticism, and after hearing him say what he did I am forced to the conclusion that there must have been something wrong with the reading of my paper, because he thoroughly misunderstood me, and he sat only 30 feet away.

Dr. F. J. Cotton, Boston: It seems to me that we cannot fairly condemn the use of all plates in bone fractures. There are after all many cases in which it seems worth while to run the risk of foreign-body sepsis in order to effect and maintain reduction. I do not use the Lane plate in the majority of my cases, because no matter how good a rigid plate is, it necessarily exposes the patient to the danger of pulling out the screws. I have seen that happen and have also seen the Lane plate itself fracture. It seems to me that much is to be said in favor of a slightly flexible elastic plate, one which can be fitted to the case in hand, and which allows of the use of a smaller plate, if necessary, especially in fractures of the femur. Whether this plate is made of aluminum or phosphor-bronze or silver or wrought iron does not make any difference, but I think that a slightly elastic plate should be used. I have been disappointed that no one took up what I said about the presence of synovial fluid in intracapsular fracture. It has been said that we must always secure contact of the fragments, but no one referred to the exclusion of the synovial fluid, and that, in my opinion, is most necessary to secure clot and callus between the bones. Reasonable contact without such exclusion may often be insufficient.

Dr. William Darrach, New York: I agree with Dr. Cotton that a slightly flexible plate is better than an absolutely stiff one. I think that the vanadium steel plate is the ideal one. Most plates kept in stock do not fit, and therefore one should also have at hand some material which can be molded to fit. We ought to have more detailed reports of cases because it is only in that way that one can learn the end-results in these cases, say after six months or, better, two years. Then we can compare the newer methods with the older ones, the open treatment with the closed treatment. I hope that my paper did not convey the idea that these operation are easy, because they are not.

Dr. Leonard W. Ely, Denver: Clinical observation is the final court of appeal! This final court of appeal has been handing down its infallible decisions for thousands of years. They are received without question, until some obscure pathologist in the privacy of his laboratory examines them under the microscope, and they are laughed out of court. Clinical observation teaches millions of people in this country that they can cure all disease by dilutions of powdered sugar, millions more that they can cure all disease by tinkering with the spine, and millions more that they can cure all disease by denying its existence. It teaches one thing to-day and another to-morrow. Clinical observation is not the final court of appeal. It is an advocate before the bar, and when the advocate usurps the functions of the judge, and hands down decisions contrary to the evidence of sound pathology, we have a remedy—the recall.

CONSTIPATION AND HEADACHE IN WOMEN

A STUDY IN ETIOLOGY AND DIAGNOSIS *

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The frequent occurrence of constipation and headaches in women is a matter of daily observation by every practitioner. The almost constant occurrence of these two symptoms in connection with painful menstruation, tender ovaries and uteri that are more or less displaced has led to the general conclusion that these conditions are the actual causes of the constipation and headaches. We have heard much in times past of "reflex headaches" and of "constipation due to the pressure of a displaced uterus on the rectum." We have likewise seen many of these cases in which the constipation and the headaches have gone on even with increasing severity, after the conditions within the pelvis had been corrected.

I am now seeing a certain important number of cases in which the pelvic symptoms, with the constipation and headaches, disappear after the cure of the conditions of the stomach and intestines, on which the constipation and headaches depend. It would seem, therefore, as if, in these certain cases, the original proposition would have to be reversed and that we are henceforth to look on the displacements and functional disturbances of the uterus and ovaries as being caused by, rather than being the cause of, conditions of the stomach and intestines to which I am about to allude.

The theory is not new. It was in 1885 that the researches by Glenard[1] established the following facts, viz.: 1. Downward displacement of the stomach and intestines, both large and small, is of frequent occurrence. 2. Such displacements give rise to mechanical obstruction of (a) the fecal current, (b) the mesenteric and other visceral circulation of the blood, and (c) the chyle and lymph currents. 3. The mechanical obstruc-

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Glenard, Franz: Les Ptoses Viscérales, Paris, 1899. This embraces the communication by the same author published originally in the Lyon Médical, March, April, 1885.

tion, of various degrees, in the intestinal tract not only causes serious disturbances of digestion in both the stomach and intestines, but causes likewise the phenomena of constipation with resulting hyperabsorption of toxins that are physiologically elaborated in the *prima via*. 4. The absorption of such toxins causes headaches, nervousness, mental depressions and numerous other phenomena often grouped in the clinical picture of neurasthenia. 5. The downward displacement of the intestines implies that their weight and the weight of their contents rest on the underlying uterus, ovaries, fallopian tubes and other pelvic organs. 6. Such superimposed weight and pressure, and the circulatory disturbances to which I have alluded cause mechanical congestion and more or less marked displacement, with resulting pain, tenderness and functional disturbance of the uterus and ovaries.

That intestinal displacements, considered as causes, not only of constipation and headaches in both sexes, but of pelvic disturbances in women, are often overlooked is established by the histories of many cases now and latterly occurring in my practice, many—practically all—of which have been under treatment previously for conditions of the uterus and ovaries. Displacements of the uterus have generally been corrected by necessary operative interference, without which recovery under any circumstances would have been impossible. Gross organic changes—such as growths and degenerations of either the uterus or ovaries, or both — may have been removed, and adhesions, the traces of previous inflammatory disturbance, may have been broken up. Lacerations of the cervix or perineum, or both, may have been repaired. In short, all strictly gynecologic indications may have been met, without amelioration of either the constipation or the headaches that existed before operation. Then, whatever may have been the treatment preceding surgical interference, the patient is started on another round of experiences. First, from sheer necessity she is given cathartics, with or without high injections, as the necessary means of temporary relief. Those who can afford it start on a tour of the watering places, where, in addition to laxatives, they employ baths and massage, which seem to help while they are kept up.

Those who cannot afford to travel, but must earn their living, stay home and take pills, salts and injections. These, too, help or seem to help for a time, each dose, however, increasing the necessity for still other doses. At about this stage, full symptomatology becomes developed.

SYMPTOMS

When treatment of this character is interrupted, there is generally a prompt relapse. Not only do the constipation and headaches, but the uterine and ovarian symptoms, if they have been relieved at all, resume their original severity. In addition, there is pain in the back, especially high up in the loins, and occurring with more frequency on the left side. There is liable to be a distinct complaint of pain at the lower end of the spine, radiating thence down one or both thighs. In front, on the right side, there are two distinct locations, to one or both of which pain is frequently almost constantly referred. One of these is the right lower quadrant in the neighborhood of the appendix vermiformis; the other is in the right upper quadrant near the lower margin of the liver. Pain in these localities may, or may not, be constant; it may be of a dull, aching character, or, as frequently happens, it may become severely colicky. These colicky pains in the neighborhood of the appendix are often so sudden in onset, so intense in severity, so definite in location, and are associated with such rigid, local, muscular resistance as to simulate appendicitis. So often has this occurred in my practice, that, in the absence of temperature disturbance, I have come to designate the condition as "pseudo-appendicitis." So marked is the resemblance to true appendicitis that the diagnosis cannot be established without surgical interference, which, in such cases, ought to be done to give the patient the benefit of the doubt.

On the left side, in front, pain of the same character is often in the upper quadrant at a point corresponding to the point of greatest persistence of pain in the back. There is more or less of discomfort in the lower zone of the abdomen, which may be tympanitic, especially in the left side. The bladder may be irritated, as shown by frequent desire to urinate. Digital examination with the patient standing will always show either a displacement of the uterus, or the presence of a superimposed weight, tending to force it into a state of displacement. At the same time, the complexion is generally bad, there is a tendency to sleeplessness and nervous irritability, there is liable to be some irregularity of the heart, digestion is upset, there is often loss of flesh, and almost constantly there is a loss of energy, associated with mental depression.

DIAGNOSIS

These symptoms are sufficient to establish a presumptive diagnosis of displacement of the stomach, or of the colon, or of both. But, fortunately, it is not necessary that the diagnosis of these necessarily remote and elusive organs should be merely "presumptive." It can be placed absolutely in the positive class, either by the *x*-ray, or by an exploratory operation. If the *x*-ray is employed, an excellent instrument and a skilled operator are necessary to secure reliable results. When they are employed, in the cases indicated, some of the recognized departures from the normal standard of position will be found in the stomach, the colon, the sigmoid, or the small intestines, or all of them. The stomach is very likely to be shown as occupying a very decided vertical position in the left side of the abdominal cavity with more or less pronounced angulation of the pylorus, which lies well down in the left iliac fossa. It should be remembered, however, that a stomach occupying this position, when normally laden, may have the power of emptying itself with physiologic promptness and of regaining its normal position when thus emptied. The peristaltic waves may sometimes be demonstrated. It follows, therefore, that the so-called tubular stomach, one demonstrated to be occupying the position that I have indicated, should not be considered pathologic unless gastric symptoms, clearly explainable by and traceable to the displacement, comprise a feature of the case.

The position of the small intestines can sometimes be approximately determined by shadowy flocculi a few hours after the bismuth has been given, and after it has had time to make the descent. The perfection of the Roentgen technic will doubtless shortly enable us to determine this phase of these cases with more precision than is now possible. In the matter of the colon, however, present revelations are most striking, accurate and detailed. It is important, however, for the proper interpretation of the plates thus made to understand what comprises the normal and what an abnormal condition of the colon, and especially the transverse segment of the colon. No hard and fast locus can be defined as explicitly normal. Ample *x*-ray pictures show, however,

that the normally laden colon extends directly upward from the cecum along the right side to the so-called hepatic flexure, thence along the right costal margins obliquely upward and across to the splenic flexure on the opposite side, and thence vertically downward to the sigmoid. Plates given in the conventional anatomies showing a horizontally transverse colon are erroneous and misleading.

Departures from this approximately normal standard are numerous and of varying degree. The usual displacement, however, consists of a general descent by which the cecum finds its way low into the pelvis. There is a corresponding lowering of the hepatic flexure often below the level of the anterior, superior spinous process, then a sharp dropping of the transverse colon producing obstructive angulation at the hepatic flexure. The transverse colon may be redundant and folded on itself, thus producing one or more additional angles of resistance. It then sweeps up to the splenic flexure, which point of fixation is but rarely disturbed, but at which, in these cases, another acute angle of resistance is formed. There may, or may not be similar redundancies and folding of the sigmoid, thus giving rise to other points of retardation.

In certain cases, it is easy to read in the *x*-ray plate that, in addition to the displacements already indicated, there exists a constriction of the ascending colon, due to a long-standing pericolitis with consequent formation of Jackson's membrane. It is frequently possible, by the same means, to tell whether or not there are adhesions between the proximal surfaces of the intestines, or between the intestinal and other peritoneal surfaces.

A study of the diagnostic points shows that they may be, and histories given by my patients show that they are, frequently misinterpreted. Gastric ulcer, gastritis, duodenal ulcers and pyloric cicatrices are the conditions most generally confused with gastroptosis. Appendicitis, gall-stones, renal colic, infections of the fallopian tubes and trophic or inflammatory disturbances of the ovaries are the conditions most generally confused with displacement of the colon. A careful study of the symptoms of gastrocoloptosis as given, remembering that they comprise a rather definite complexity, will enable the examiner to arrive at a presumptive diagnosis by exclusion. The question is, of course, promptly settled by the *x*-ray.

I wish to be emphatic in the statement that not all departures from what I have indicated as the approximate normal standard are attended with or followed by symptoms of disease. On the contrary, certain deviations, some of them associated with apparent angulation, seem to be compatible with a fair degree of health. It is only in those cases in which, with displacements demonstrated with the *x*-ray, there exists such associated and logically sequent conditions as habitual constipation, painful peristalsis, headaches, nervousness, mental hebetude, lessened efficiency and other evidences of toxemia, or in which several of these conditions are found to coexist with constipation — I say it is only in such cases that we are justified in looking on the case as one calling for surgical interference.

Now that I have made this point clear, let me resume the thread of my observations by stating that the displacements of the intestines such as I have indicated, when pathologic in degree and effect, are always associated with distinct retardation of the fecal recurrent, and with the consequent inevitable hyperabsorption of toxins. This retardation as shown by repeated *x*-ray pictures occurs first in the cecum, next at the hepatic flexure, next at any point of acute angulation that may exist in the redundant and angulated transverse colon, next at the splenic flexure and finally in the sigmoid. My observations, based on nearly two hundred diagnosed cases, show that the transit through the colon may be retarded all the way from a few hours to five days. I have no doubt that cases have been observed by other practitioners in which an even longer period of transit has been demonstrated. The fact, as shown, that this retardation occurs at the successive point of angulation is conclusive evidence that the angulation is responsible for the retardation. The frequency with which the diagnostic importance of these symptoms has been, and is being, confirmed by surgical exploration at my hands and at the hands of others impresses me that they comprise a more or less definite syndrome. The uniformity with which the conditions thus revealed are overcome either by actual correction or by compensatory operation, and the almost equal uniformity with which such treatment is followed by cure, both local and constitutional, convinces me that intestinal displacements are at least frequent causes of pelvic mischief and general disturbances of health in women, and that the cure of such intrapelvic conditions must logically depend on the cure of the underlying causative conditions in the stomach and intestines.

Groton Building.

ABSTRACT OF DISCUSSION

Dr. Richard R. Smith, Grand Rapids: In a general way I quite agree with Dr. Reed's conclusions as to the relationship of the pelvic disorders to intestinal displacement. I think we can hardly trace any particular connection between the two. We would naturally think that pelvic displacements would be associated with displacements in the abdomen and vice versa. As a matter of fact, we have hard work to find any particular relationship. Prolapse of the uterus is to-day properly regarded as a hernia and has about the same relation to intestinal displacement as any other abdominal hernia, and that is practically none. With retroversion, on the other hand, we might suppose that the change in axis of the pelvic cavity so often found associated with visceral prolapse would have some influence in displacing the fundus backward. If we investigate the matter, we do not find that this occurs with sufficient regularity to justify any such supposition; so we may say that, anatomically at least, there is no apparent relationship between the pelvic and the abdominal displacements. The group of symptoms so frequently spoken of—backache, pain in the side, a feeling of weight and bearing down, with disturbance of the functions of menstruation, digestion and urination and a long list of psychic disturbances —we may find when we have displacements of the abdominal organs, or of the pelvic organs, or both. I am not willing to accept Dr. Reed's rather wide-spread conclusions as to the relationship between the prolapse that we find and the symptoms which we find associated with it. Certainly women with the most marked prolapse often have practically no symptoms. On careful study we shall find, I believe, that in the majority of cases the symptoms are due to another cause, usually a fatigue neurosis. This would not cover all the cases but the great majority, and I think we must be most careful in separating from this general group the cases in which the displacement itself actually causes symptoms; otherwise, we shall be inclined to treat surgically many patients who will not be benefited but perhaps made worse.

Dr. J. H. Carstens, Detroit: What is back of all this trouble? These poor women are born wrong with the relaxed conditions of all the organs. Not only that, but to a great extent they are made so by their mode of living. A girl who is slim and thin studies, goes to school and thumps the piano three or four hours a day; perhaps she is poor; perhaps her

ancestors were seventeen generations of the man with the hoe. She has a poor brain, but one attribute of the mind—ambition. She wants to be a school teacher, or a stenographer, but she has not the mental ability to grasp thoughts quickly. As a result she studies hard, sits on her chair all day and does not exercise. That is the great trouble at the bottom of the whole thing. Take the girls of that type when they are 10 or 12 years old and make tom-boys out of them and they will not suffer like that. It is not a question of doing this or that operation, but a question of wrong physiology. We do not take hold of those girls early and make them take physical exercise so that they develop their muscles and nerves and get strong abdominal organs that will stay in place. That is what we have to do for the treatment. Some of these people have colons hanging away down with angulations. A woman came to see me the other day with auto-intoxication—absorption. Why? Because she does not live a physiologically correct life. I have figured that she drinks one pint of liquid in a day. How in the name of common sense do you expect the liver to carry on metabolism? How do you suppose the bowels will move if there is no more liquid to carry on the work? Let the woman drink four pints of liquid a day. Then there will be metabolism and no auto-intoxication. Let us have a little more physiology!

DR. JABEZ N. JACKSON, Kansas City, Mo.: It is rather evident to me that Dr. Smith and Dr. Carstens have failed entirely to grasp the fundamental facts as presented by Dr. Reed. In the first place, I take it that Dr. Reed has made no reference whatsoever to the displacements of the pelvic organs of women, but rather to pelvic conditions dependent on displacement of the intestinal structures. Dr. Carstens has talked a good deal about the necessity of preserving more of the physiologic function of the woman. Any one who has observed the displacements covered by Dr. Reed's paper realizes that they are caused by enlarged cecum, described by the Germans as "mobile cecum," and are fixed mechanical conditions. When occurring in woman, with an abdomen filled with the colon, many a one has lost her ovaries under a diagnosis of ovarian disease when the trouble was not in the ovary at all but in the prolapsed viscera of the intestinal tract.

DR. F. H. ALBEE, New York: Two years ago I read before this Section a paper on the sacro-iliac joint in its relation to the pelvic organs. My attitude then held has been confirmed. I believe that intestinal displacement is caused often by faulty posture. Our *x*-ray examinations with bismuth show us faulty position of the intestines and this produces faulty position of the pelvic organs. This faulty posture leads to relaxation of the sacro-iliac joint. The sacro-iliac joint is sometimes so close to the pelvic organs that it is difficult to differentiate between pain due to displacement and that of the joint. Last year I was especially struck with the fact that two patients came to me who had been operated on four times, and who were entirely relieved by treatment of the sacro-iliac joint. One woman stated that much to the surprise of the man who operated on her she was worse after the operation than before. The sacro-iliac joint had been still further displaced by the operation. I want to emphasize the fact that every one should look for the relaxation or strain of this joint in the examination of the pelvis. The strain may occur from a very simple labor or from the slightest cause. In illustration—a man helping to set a large plate glass pane leaned over holding the glass in a certain position for a few minutes and acquired this relaxation from that cause.

DR. ROBERT T. MORRIS, New York: I agree with Dr. Carstens. You have to go back of all these superficial questions to the point where you are dealing with fundamental defects. Unless you realize that you are dealing with defective organs you will not grasp the subject in its entirety. You many hang up the loose colon, but how do you hang up that patient's brain? You hang up the uterus, but how do you hang up the adrenals. As Dr. Carstens says, you have to train your patient as best you can with the best organs you can bring into play. Treating one organ after another is a mistake. These ptosis patients are extremely amenable to suggestion as a class. We should go back to the fundamental fact of decadence in a rapidly developing race, when considering the cases.

DR. JOHN B. DEAVER, Philadelphia: I endorse what Dr. Carstens and Dr. Morris have said. I believe this question is largely one of education. If we brought up our boys and girls to ride horseback, play golf, tennis, etc., fed them well and slept them well we would have fewer cases of ptosis. Too much attention is paid to the training of the mind and too little to that of the body. We know that from the various boarding-schools children will come back with curvatures of the spine, with stooped shoulders; and as a matter of course, you cannot expect to find normal abdominal viscera. I see a fair percentage of these cases among shop-girls; I believe large companies should have a gymnasium in connection with their stores and that an hour or a portion of an hour each day should be devoted to looking after the interests of the body. I believe that a good percentage of these cases is due to faulty parents—faulty because they know nothing about Nature or Nature's laws.

DR. A. E. BENJAMIN, Minneapolis: I think we are all agreed on the etiology of the condition. If the transverse colon is fastened down to the cecum by adhesions or with adhesions around the sigmoid flexure, operation is necessary, and after operation it is essential to follow these cases for months and perhaps years. Some patients who have gone out into the country following operation have written me that they have had the same symptom return. I think if we put such patients after operation in certain positions and prescribe regular forms of exercises and of diet, direct them to assume the knee-chest position frequently and sleep with the foot of the bed elevated 10 or 14 inches we shall get good results. I have been able to produce permanent cures in the greater portion of these patients. Furthermore, I have been able to correct displacements of the uterus without operation in early cases by the same procedure. The ptosis, the retrodisplacement and enlargement with metrorrhagia will disappear. I have established this to my own satisfaction in enough cases to know that the method is of value.

DR. C. O. THIENHAUS, Milwaukee, Wis.: It seems to me that the previous speakers are somewhat drifting away from the subject of the paper. People may have neurasthenia and hysteria without displacements of the abdominal organs, and vice versa, many women have displacements without neurasthenia and hysteria. Naturally, if we find that displacements of the abdominal organs are, as Charcot has expressed it, the *agent provocateur* of hysteria and neurasthenia, they ought to be operated on. But Dr. Reed's paper does not dwell on this subject; as far as I could understand it, he wants to point out that in many women the genital organs have been operated on and fixed in which diseases of the intestines, such as Lane's kink, Jackson's band, movable cecum, angulations of the transverse colon in the region of the spleen or liver, diseases of the sigmoid flexure, etc., were the *fons et origo* of the complaint. Of course, if these latter conditions produce disturbances they must be corrected; whether the patient is suffering from neurasthenia or hysteria at the same time does not cut any figure.

DR. CHARLES A. L. REED, Cincinnati: Every paper that presents an innovation in treatment or a new point of view is a psychologic experiment. When it comes to the discussion you can generally tell the individual who has given that subject previous thought. I am gratified to feel that as a psychologic experiment this paper is a success. I think I can make the classification without much difficulty. A number of those who have spoken antagonistically to the paper have gone wide of the mark; none has discussed it that I have heard. The point was very correctly made by Dr. Jackson that I have not been discussing the question of the etiology of ptosis of the stomach or of the colon, or any other ptosis. That question was entirely outside of my paper. I was speaking of the relationship of these ptoses to certain conditions in the pelves of women; and so far as the answers have been offered, only one has been made, and that by Dr. Smith,

who has rather oracularly swept the whole subject off the face of the earth. According to him, this relationship does not exist. It may not exist with regard to the women of Grand Rapids, but a little farther south, in Cincinnati, we see a demonstrable connection between these two conditions. I have a suspicion that Dr. Smith generally operates with his patient in the Trendelenburg position, under which circumstances, of course, he never sees ptosis of the colon or of the intestine. I suspect, furthermore, that he never has an *x*-ray picture made in his gynecologic cases. If so, he is the only one of my acquaintance who does. Without an *x*-ray picture of the position of the stomach and colon, and without a demonstration of that position at the time of the operation, Dr. Smith is really in no position to say that these conditions do not exist or do not exist with a remarkable degree of frequency. In other words, Dr. Smith has attempted to prove a negative—always a difficult task, but especially so when the evidence is lacking.

Dr. Morris is wedded to the degeneration view of humanity. He speaks of these cases as cases of degeneracy, but we often find strong women who have followed a very correct hygienic life going on to 18, 20 and 23 with perfectly normal functions, suddenly having some trauma, when all at once there is interference with metabolism concerning which Dr. Carstens seems to entertain some rather unusual and erratic views. You cannot under these circumstances speak of this distinctly acquired and manifestly traumatic condition as one of original degeneration. I do not know where he gets his data, but I do know that his philosophy will not fit the facts as they occur in the clinical field.

DR. RICHARD R. SMITH, Grand Rapids, Mich.: The trouble with a discussion of this kind is that the matter is so many-sided and complicated, and the point of view so varied that the statements we make are very apt to be misapplied. This is evidently what has happened in the present instance. Dr. Reed quite misunderstood what I said in regard to the relationship of pelvic and abdominal displacements. That they frequently coexist is unquestionable, but that they have any particular relationship is very doubtful. I have had made a very considerable number of *x*-ray examinations of patients presenting themselves with pelvic and abdominal symptoms and am quite aware of the frequency of visceral displacements. I would not wish to "sweep the thing off the face of the earth" as Dr. Reed has said, but I cannot too strenuously urge the necessity of caution in the case of a woman with visceral displacements and with symptoms. We should not conclude that the two stand in the relationship of cause and effect. In the vast majority of instances at least the patient is suffering, not because her organs are out of place, but because she has been under some strain and is fatigued or is neurotic from other causes.

IODOGLYCEROLE IN THE TREATMENT OF MOUTH INFECTIONS *

EUGENE S. TALBOT, M.D.
CHICAGO

No one drug has come into general use as a germicide with such universal satisfaction as iodin. Its virtues are so well known in surgery as to require no comment.

I began the use of this drug in 1878 when I commenced my researches in interstitial gingivitis. As a mouth antiseptic and germicide it acts more quickly and more satisfactorily than any other drug. The objection to the use of the official preparation, which contains 7 per cent. iodin dissolved in alcohol to which is added 5 per cent. potassium iodid, is due to the fact that frequent applications will destroy the mucous membrane of the mouth. To obviate this, I prepared the following and called it iodoglycerole:

Water	2 parts
Zinc iodid	3 parts
Iodin (crystals)	5 parts
Glycerin	10 parts

As compared with the ordinary tincture of iodin, its astringent properties are greatly increased; the glycerin causes rapid absorption and the irritating effects are reduced to a minimum. The penetrating effect is remarkable. The glycerin thickens the preparation and prevents it from mixing with the saliva and running over the mouth as the ordinary tincture will do. This preparation may be used on the gums every day, if necessary, without injuring the parts. The teeth as well as the soft parts of the mouth should be treated in like manner since all germs are destroyed. I have been able to reduce decay of the teeth in my patients in the past ten years from 30 to 40 per cent. All patients receive this treatment before or after each sitting.

Patients present themselves with fetor of the breath, pus about the teeth, inflamed gums, diseased alveolar processes, acid mucus and saliva, the latter being also ropy and stringy, plaques on the teeth and decay, with all the forms of bacteria from the most harmless to the more dangerous pathogenic microorganisms such as the pneumococcus, diphtheria bacillus, tubercle bacillus and the germs of children's diseases. Miller has demonstrated more than fifty varieties of microorganisms in the mouth. Pus germs are often present in and about the necks of the teeth, and easily infect wounds and inflamed tissue. These germs are also taken into the stomach at every swallow; some pass through into the intestines and have been found in the feces. While most of the better class of patients possess fairly cleanly mouths, yet from 12 to 20 per cent. of all patients have pus germs in the oral cavity.

Tooth decay is due to lactic-acid ferment and nearly every person has it to a greater or less extent. Clinic and dispensary patients and especially the poorer classes, who never use brushes, washes or powders in the mouth, possess regular cesspools of filth.

To prevent contagions and infections among public school children, their teeth, gums and mucous membrane should be treated with iodoglycerole as often as once a week during the school term.

What I wish particularly to call attention to is the wonderful effect this preparation has on bone disease, such as caries, necrosis, osteomyelitis and all pus surfaces such as ulcers, carbuncles, boils, etc. When applied to the bone tissue, it does not corrode and coagulate, but penetrates into the tissue, reaching the remote recesses of the cavity, and destroys the pus and other germs with which it comes in contact.

Caries of the alveolar process due to abscessed teeth yields readily after the root or roots have been amputated, often without curettement of the bone. The soothing effect of the glycerin, the astringent and stimulating properties of the zinc iodid, and the germicide and antiseptic qualities of the iodin all help to restore bone tissue quickly to health.

In all operations on abscessed cavities, it should be used before as well as after operations; in extracting teeth, with or without abscess formation, it should be used before as well as after; in inflamed and diseased tonsils in which germs are always present, the preparation may be used with splendid results.

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Care should be taken in compounding this formula to see that the druggist uses the pure zinc iodid.

31 North State Street

ABSTRACT OF DISCUSSION

DR. M. H. FLETCHER, Cincinnati: I have had good results from this preparation. I have attributed its value to the iodin it contains, but I can see from the explanation where the by-products are of value.

DR. M. I. SCHAMBERG, New York: I have used iodin in the mouth for a number of years, and recently I desired stronger solutions than those provided, but without the destructive influence of the pharmaceutic preparation on the mucous membrane. I was finally able to get a scientific chemist to make for me a 15 per cent. solution in some oil. This preparation has worked beautifully in the putrefactive conditions about the mouth and in pyorrheal pockets. Surgeons generally are adopting the use of iodin more freely than ever before, so they frequently bathe wounds with iodin preparations instead of with mercuric chlorid solution.

DR. VIDA A. LATHAM, Chicago: In the operating room, as you all know, they have a standard preparation, and the nurse hands you the bottle for use, whether it is for a laparotomy or a tuberculous incision in the neck. What is the result? I had a most disagreeable case to handle not long ago, a boy with tuberculous glands to be removed. I had more trouble from the burning and sloughing of the skin and epidermis due to the solution than I had from the operation. Why? Because the alcohol tincture in the heat of the operating-room becomes concentrated, and as a consequence there is danger of burning the skin.

DR. S. L. MCCURDY, Pittsburgh: In the first edition of my work on oral surgery, published in 1902, I recommended the use of iodin. I had been using it a good many years before that time in general surgery, and before the American Orthopedic Association, seven or eight years ago, I read a paper on the use of iodin in long-bone infections in which I reported a series of cases of osteomyelitis of long bones in which iodin was used and in which it was generally satisfactory.

I have never had a symptom of poisoning when injecting it into old tuberculous sinuses, as Dr. Beck recommends his paste. In injecting it into these cavities I have a needle, specially made for this work, 6 inches in length, so that the bottom of the cavity may be reached.

I think the glycerin adds very much to the efficiency of the preparation. The muds made of a combination of kalolin and glycerin have a hygroscopic power which is in the glycerin and not in the mud. I have become so convinced of the value of glycerin in this connection that I now use in all bone diseases and in inflammatory conditions about the glands of the neck iodin, 1 part, and glycerin, 7 parts, applied on cotton.

DR. EUGENE S. TALBOT, Chicago: Some German a few years ago found that it was necessary to use only about 10 or 12 per cent. of the ordinary tincture of iodin to destroy these germs after surgical operations.

It is absurd for us as practitioners of stomatology to place our hands in filthy mouths without first sterilizing them. If you go into any dental college you will find clinics given by students who never undertake to use an antiseptic at all, but operate with pus oozing from around the gums, and in filthy mouths in which no attempt has been made to sterilize. I frequently send patients home after making an application of iodin, and have them come back once or twice for additional applications until I find the mouth in a normal condition, before I undertake to treat them at all. And every patient that comes to me gets an application of that preparation either before or after operation. A little cotton wound on the end of an applicator can be carried in the mouth and around the necks of the teeth. You need not be so particular as to how much of the iodin goes over the teeth and gums, if it is the first application in a filthy mouth. I apply it quickly before it is absorbed and before it gets all over the tongue, cheek and lips. In those other patients I am more particular about carrying it around the margins, to hold the lips apart until it dries out.

A STUDY OF THE CUBIC CAPACITY AND SUPERFICIAL AREA OF THE MAXILLARY SINUS*

VIRGIL LOEB, A.B., M.D., D.D.S.
ST. LOUIS

The maxillary sinus (antrum of Highmore), on account of the close relationship which it bears to rhinology and stomatology, perhaps has been more closely studied than any other of the accessory sinuses of the nose. It has been known for a long time that this sinus is pyramidal in shape; that the base is directed toward the nasal fossa and the apex is directed toward the malar bone; that the apices of the roots of the upper second bicuspid and first and second molar teeth often lie very close to the floor and sometimes perforate it; that the sinuses vary in shape and size in different persons and even on different sides of the same person.

Clinical observation has shown that the maxillary sinus is subject to diseases which have their origin, not only in the nasal cavity, but also in some of the other accessory sinuses and in the teeth.

This cavity has been studied *in situ*, from an anatomic standpoint, by many men, but few have attempted accurately to reproduce the sinus in some concrete form and make observations of it in this manner. Some have determined the cubical capacity of several pairs of these sinuses and were forced to destroy the heads in making the observations, but, so far, no report has been made in the literature of the superficial area of the sinus.

The report here presented is the result of a study made on the maxillary sinuses in which I have determined the cubic capacity and superficial areas of twenty-one pairs without destroying the original heads. This work is based on the method used by H. W. Löeb[1] in studies of the sphenoid sinus, presented before the Third International Laryngo-Rhinological Congress at Berlin, August, 1911.

FORMER METHODS OF OBTAINING CUBIC CONTENTS

Brühl[2] describes the method first used by Siebenmann on the maxillary sinus. It is the same as that which Hyrtl used on the labyrinth and is known as the corrosion method. He used a metal which solidifies after being injected into the sinus. The surrounding parts are then destroyed by maceration, the cast of the sinus in the substance used remaining intact. Quicksilver was also injected into the sinuses and *x*-ray pictures were taken to show the size and shape of the cavity.

Brühl used the method which Katz employed on the labyrinth. He filled the sinus with Wood's metal, which melts at 65 C. (149 F.) and which consists of:

Lead	8 parts
Zinc	4 parts
Bismuth	15 parts
Cadmium	3 parts

He then by some process, not described, rendered the bone transparent. In this way a clear view of the sinuses could be obtained, *in situ*. He then removed the casts and obtained the volume by noting their displace-

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Departments of Anatomy and of Ear, Nose and Throat Diseases in St. Louis University.

1. Loeb, H. W.: Ann. Otol., Rhinol. and Laryngol., March, 1912.
2. Brühl, Gustav: Zur Anatomie der Nebenhöhlen der Nase, Berl. klin. Wchnschr., 1900, No. 41.

ment in water. His results from observation on twelve heads were as follows:

Head	Cubic Capacity in c.c.	Head	Cubic Capacity in c.c.	Head	Cubic Capacity in c.c.
1	16.6	5	14.1	9	2.9
2	14.1	6	8.1	10	4.5
3	11.7	7	10.5	11	9.4
4	8.3	8	11.2	12	9.8

The general average was 10.1 c.c.

These observations are very important, but naturally lose much because of the necessity of destroying the specimens in order to remove the casts.

Braune and Clasen[3] report measurements of four pairs of maxillary sinuses, the casts of which were made by the corrosion method. Their results are as follows:

Head	R. L. in c.c.	Average in c.c.
1	12.5, 11.6	12.05
2	11.2, 13.3	12.2
3	11.5, 11.7	11.6
4	17.3, 18.2	17.7

General average 13.38 c.c.

MATERIAL

The heads used in the study here presented were preserved by injecting a 50 per cent. dilution of liquor formaldehydi through the carotid; they were decalcified by soaking in a 3 per cent. solution of hydrochloric acid for from three to five months. They were then cut horizontally in sections about 1 inch thick by means of a very sharp knife. These heads are from the Anatomical Department of the St. Louis University. All were heads of adults, and in no instance has it been possible to ascertain any history of the individual.

METHODS OF MAKING PLASTER CASTS AND THEIR GROSS APPEARANCE

The portion of the sinus lying within the adjacent sections was filled with soft plaster-of-Paris which when hardened was removed and the adjacent portions united with a thin layer of very soft plaster. This finally resulted in a complete cast of each sinus.

The plaster casts, forty-two in number, representing twenty-one heads, give a clear idea of the size, form and irregular contour of the sinuses. These casts are mounted in pairs and show the relation of the right and left sides.

The right and left of each pair of sinuses are more or less symmetrical, but vary in size. They are roughly triangular in shape with the apex posterior, and with all the walls practically triangular except the internal, which is more or less quadrilateral. While the two sinuses of one head usually are similar, they differ materially from those of any other head.

CUBIC CAPACITY

The measurement of the displacement of water resulting from the immersion of a body in water gives the volume or cubic capacity.

Since these casts are made of a porous material, they were first allowed to remain for several minutes in melted paraffin so that the interspaces might be made impervious to water. After this the cubic capacity was ascertained volumetrically as follows:

3. Braune and Clasen: Die Nebenhöhlen der menschlichen Nase in ihrer Bedeutung für den Mechanismus des Riechens, Ztschr. f. Anat., 1877

Head	Right in c.c.	Left in c.c.
3	8.0	7.5
4	24.8	24.5
5	24.5	19.2
6	16.8	13.0
7	13.9	14.5
8	7.0	4.9
10	10.2	10.0
11	14.5	15.2
12	10.0	7.2
14	13.0	14.8
15	13.0	9.6
16	4.5	4.8
17	12.0	8.0
18	11.5	4.8
19	12.5	18.5
20	14.9	15.2
22	14.7	8.5
28	11.0	9.0
29	8.5	7.5
30	18.3	15.0
31	9.5	6.2
Average	13.02	12.85

The general average was 12.94 c.c.

These results show the extremes to be head 16 right, 4.5 c.c., and head 4 right, 24.8 c.c. The average, however, of the right side is very near that of the left.

SUPERFICIAL AREA

Adhesive plaster as used by H. W. Loeb, in connection with the superficial area of the sphenoid sinuses, was employed in determining the superficial area of the maxillary sinuses. A strip equaling 25 sq. cm. (5×5) was placed with the adhesive part down, on a small plate of glass, without stretching. With a sharp knife pieces were cut and fitted on each cast until it was entirely covered, care being taken that the pieces did not overlap.

It is safe to say that this method is not subject to an error of 2 per cent.; in fact, it is more than likely that there is not more than 0.5 per cent. of error.

The results in square centimeters are as follows:

Head	Right	Left
3	25.9	25.2
4	52.3	48.4
5	51.3	45.8
6	43.1	37.0
7	34.2	37.7
8	27.7	21.2
10	29.0	29.7
11	35.1	30.9
12	28.3	22.4
14	35.2	35.0
15	33.1	28.6
16	12.1	16.3
17	30.0	25.0
18	34.2	16.5
19	31.0	40.0
20	33.1	33.1
22	36.9	27.3
28	29.1	26.3
29	25.9	25.9
30	41.4	38.1
31	27.4	21.0
Average	32.91	30.43

The general average of all the sinuses is 31.68 sq.cm., showing a marked uniformity in the two sides. The extremes are head 16 right, 12.1 sq.cm. and head 4 right, 52.3 sq.cm.

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ABSTRACT OF DISCUSSION

DR. G. V. I. BROWN, Milwaukee, Wis.: We often do not trouble to remember that the nasal accessory sinuses are receptacles which may harbor microorganisms and thus make it possible for infection to take place at any future time. We should appreciate the great need of association with those who treat the nose in order that no factor may be overlooked which otherwise might lead to the detection of nasal accessory sinus disease. It is important for us to endeavor to learn why such great differences in the size and form of these sinuses occurred; to discover, if possible, any factor that may have been at work which might have been controlled at an earlier stage.

DR. EUGENE S. TALBOT, Chicago: Twenty-five years ago I did a good deal of work along this line. More than half the antra had septa in them, some one, two and three, which extended nearly to the roof of the upper part of the cavity. None of them were completely bridged across, there being always an opening between these partitions from one to the other. It was interesting to see that the two sides were unlike and that the size differed. This work was done by sawing into the antra and making measurements and by visual examinations. The antra extend often away beyond the last molar tooth, which is an important point in the treatment of this disease.

DR. G. V. I. BROWN, Milwaukee, Wis.: I have demonstrated, by preventing the growth of the maxillæ in dogs, that I could produce an enlarged maxillary sinus, which is unusual in dogs. Similar conditions in human beings undoubtedly produce the same result, and are doubtless in a measure responsible for some of the unusually large maxillary sinuses shown in Dr. Loeb's collection.

DR. VIRGIL LOEB, St. Louis: Regarding the form of the nasal cavity in relation to the arch, I wish to say that these specimens are from heads selected at random from the anatomic department of St. Louis University, and for this reason, of course, nothing was known of the history of the cases. As it happened, there were no particular pathologic conditions around the mouth or nose, with the exception of a deflected septum here and there, and enlarged turbinates. There was nothing particularly unusual in them, and I should say that they vary in size and shape as the antra of those present in this room would probably vary. I think these illustrations prove that the size of the head and mouth does not have a great deal to do with the size of this particular cavity.

So far as the treatment is concerned, my ideas have not changed materially on seeing how enormous these cavities can be. I have always thought that the treatment of empyema of the antrum should be largely through an opening into the nasal cavity, with an additional opening through the mouth if necessary, but essentially the opening into the nasal cavity. If an opening has to be made, I prefer the nose to the mouth. I should say that we see 10 or 15 per cent. more cases of infection of the antrum from the nose and by way of the other accessory sinuses than from the teeth.

DR. I. HEAD, Philadelphia: As to the size of the skull, while it is interesting, I think we all know that the mouth has little to do with it, owing to the fact that the size of the intermaxillary bone varies according to the proper relation of the teeth during the formative period.

Essentials of Practical Eugenics.—For practical eugenics it is essential that the romantic, the affectional, basis of marriage should be preserved, but the sentimental and emotional elements should be supported and guided by intelligent appreciation of all the factors necessary for parenthood that will protect the biologic values. When human beings rationally subordinate their own interests as perfectly to the welfare of future generations as do animals under control of instinct, the world will have a more enduring type of family life, a more perfect type of parentcraft than exists at present. This can be accomplished only by the development of controlling ideals that are supported not only by reason and intelligence but by ethical impulse and religious motive.—T. D. Wood, *Penn. Med. Jour.*

INFECTED AREAS AROUND THE ENDS OF ROOTS OF TEETH *

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The spongy character of the alveoli in which the ends of the roots of the teeth are embedded leaves them especially vulnerable to purulent invasion. This portion of the alveolus is frequently referred to as the apical space, because so often the osseous structure around the apices of the roots is lost to a greater or less extent on account of an abscess forming in this region. The majority of these infections are alveolar abscesses arising from the death of the pulps of the teeth. There are also pericemental abscesses, existing coincident with living pulps which have not been infected. This latter class may be variously subdivided.

The course of the ordinary alveolar abscess is generally marked by a crisis, at which time the pus escapes into the mouth, either through the plate of the alveolus, or between the periosteum and the root at the gingival border. Unless a radical cure of the abscess is effected a permanent fistulous opening remains, through which afterward a more or less constant flow of pus is discharged into the oral cavity, mixed with the normal fluid and swallowed. This form of abscess is readily diagnosed by reason of the apparent clinical factors, and whatever consequent pathologic lesions result are due to neglect in permitting such an infection to remain *in situ*.

There is, however, another form known as a blind abscess, in which a granulomatous defense seems to arise, causing a fibrous encystment of the abscessed area. In this case there is no fistula affording an outlet into the mouth. The only symptom is an occasional tenderness over the region of the diseased area, and only too often even this symptom is lacking in bringing attention to the point of infection. Generally this area increases in size and often causes discomfort for the first time after five or ten years of steady encroachment on the contiguous surfaces. This form of abscess is much more dangerous to the individual, because its presence is not suspected although pathogenic conditions may be taking place in various parts of the body as a result of the absorption of these toxins. Although there remains a great amount of work for the bacteriologist in this disease, it is evident that the various forms of streptococci play the predominating rôle in the same manner that they do in cryptic infections of the tonsils.

The toxemia resulting from these blind abscesses is of such a slow and insidious nature that generally great harm has been done before their presence is suspected. They are a result of a traumatism, some disease of the pulp, or imperfect pulp removal by a dentist. In the last few years the radiograph has demonstrated how few mouths are free from blind abscesses. Gilmer, of Chicago, estimates that 25 per cent. of the people have infected areas around the ends of the roots of their teeth.

The absorption of pus in this manner produces the same results that pus absorption can produce in any other part of the body. Our literature teems with clinical notes of these cases. I could add many such data dealing with all such conditions, but it is not

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

intended in this presentation to do more than give a synopsis of the factors involved.

In dermatology, the various acnes, eczemas, herpes, erythemas, urticaria, edema, alopecia, seborrhea, psoriasis, erysipelas, etc., can have such an etiologic factor, or their conditions can be complicated by the presence of such septic foci; affections of the upper respiratory tracts, the eye and the ear have all been traced to the same source.

Endocarditis and all the allied joint affections frequently owe their inception to a blind abscess. Pernicious anemia has been traced to this source by many authorities. Diseases of the nervous system, even to the production of insanity, have too frequently been cured by the removal of these septic foci to leave any doubt as to the possibility of their having such dental origin. In like manner clinical data as to nephritis, diabetes, cirrhosis of the liver, and many other diseases caused by infections could be cited to demonstrate the fact that in a correct diagnosis of such conditions the possibility of any dental infections should always be considered.

At the present day the radiograph gives us a clear picture of this field and makes a diagnosis comparatively easy, whereas formerly it was not only questionable, but also attended by innumerable obstacles. Superficial mouth examinations by physicians or by incompetent dentists have for many years been the main reason why so many etiologic facts of this nature have not been observed. The true physician cannot continue to salve his conscience by the farce of this kind of oral examination.

The failure of the medical curriculum to give proper stomatologic instruction to the student is primarily the reason why so many forms of malnutrition proceed to an incurable stage before they are even diagnosed. Is it not about time for the American Medical Association to use its power in urging the introduction of such a course in the college curriculum? Only after this shall have been accomplished on a broad and intelligent basis, will this barrier to a more correct diagnosis be destroyed.

If it is true that 25 per cent. of the people have such abscessed areas at the ends of the roots of the teeth, the fact certainly deserves some consideration. A careful investigation of the subject will show that this is not caused by negligence on the part of the people in caring for their teeth, but in most cases is directly traceable to imperfect dental work. If the tooth is to be conserved in a healthy state, after disease and death of the dental pulp, every portion of the organic material in the root canals must be removed and these canals sealed with an impervious homogeneous filling. This operation must be conducted with thorough aseptic precautions so that when it is completed all possibility of future infection shall have been dissipated. The irregularity of many roots and the tortuous nature of some canals make this frequently a very difficult operation and in a small percentage of cases an impossibility. In such cases the infected portion of the root must either be removed or the tooth itself extracted. The imperfect education of dentists is the cause of some of these conditions, but not of the greater majority of them.

The proper removal of such pulp material and the subsequent aseptic sealing of the canal generally entails hours of the most painstaking labor. The average dental practitioner finds it impossible to obtain a living fee for the expenditure of the amount of time necessary in a given case. This has resulted in the practice of a hasty and partial removal of the pulp, and dependence on the insertion in the canals of disinfecting agents to guard against future infection. That such medication has but a temporary value is generally understood; but there is no one to criticize such work.

If any other specialist should leave a portion of necrotic tissue in the body, it would at once bring forth the strongest protest from the patient's regular physician. Nevertheless, dentists are daily performing such surgical operations and leaving portions of necrotic tissue buried in the alveoli to become the foci for future infections. The patient's physician, not only interposes no objection, but likewise submits his own mouth to the same unsurgical procedure. This is no new statement of facts, but it seems that simple words are unavailing in arousing the profession to this continued unnecessary sacrifice of human life. Surely by this time, some little impression should have been made on our confrères. The time must be near at hand when the profession will give this the attention it merits.

38 East Sixty-First Street.

ABSTRACT OF DISCUSSION

Dr. M. H. Fletcher, Cincinnati: I have satisfactorily followed for twenty-five years the practice of putting a very small portion of arsenic, say 0.01 of a grain, as near the apex of these inaccessible roots as possible. It is inserted by winding a few shreds of cotton on the end of a broach and dipping it into the arsenious acid, and then putting it in a root filling. Most persons say this plan is dangerous, but they do not fully comprehend the technic. The whole object of filling the root canal is to keep it aseptic, but if it cannot be obliterated it can be kept aseptic for a life-time with a little arsenic, because arsenic is so slowly soluble. What little arsenic could get through the apex will easily be taken up by the blood-vessels without injury to the tissues in the apical space. If these spaces are sore from infection they will get progressively worse. Should they become sore from the use of arsenic (which they very rarely do) they will get progressively better. Infection continually increases. Arsenic prevents infection and is continually eliminated. Perfect obliteration of the root canal is the ideal way, but my inability to accomplish this in some cases leads me to endeavor to keep these spaces sterile.

Dr. C. J. Grieves, Baltimore: For the past three years in Baltimore I have been associated with Dr. W. S. Baer of Johns Hopkins University in the study of these conditions, and we have accumulated over a hundred odd cases of this type of infection, apical infection, as the primary portal of entry for infectious arthritis, and in a few cases we have been able to isolate absolutely the infecting microorganisms; that microorganism being staphylococcus, contrary to Dr. Rhein's statement—I mean in the type of cases in which we had blind apical abscesses. In almost every instance there had been some bad apical dentistry done—some portion of necrotic tissue left or some effort made to fill the root-canal. The dentist had evidently done all that could be done under the circumstances; he was trying to do an impossible thing in the filling of a tortuous canal and to remove all the contents. Nevertheless, the result was a quiet abscess of which the patient took little or no cognizance, but which had run along for years.

Out of the hundred odd cases there were a few that were clearly straight infections from a tooth-root; general infections were the rule. There would be associated crypts in the tonsils, chronic appendicitis, etc., or some other condition that tended to render this condition possible. These cases were of long standing, with abnormal temperature that ran for months. Some simulated tuberculosis, but most of them were arthritics. The method of diagnosis has been almost entirely that of digital pressure high over the alveolar process. After the area was found a series of small radiographs was taken of not more than the roots of three teeth in any one picture. The only thing we could do to relieve the condition in many cases

was extraction. In many fistula cases associated with arthritis (not blind abscesses), when the fistula healed, the temperature of the patient would go up, showing pressure absorption from retention of pus, and when the fistula was opened and drained, the temperature would become normal again. In these cases extraction almost invariably did the work when it was a clear case of the teeth as the primary point of infection.

The medical men with whom I have been associated regularly from the clinical observations condemn a tooth that has a crown on it, so thoroughly do they associate these pus conditions with the crowned tooth. Of course, we know as dentists that that is an injustice. They have, however, seen so many of these cases in which poor canal work has been done and the teeth crowned and which have later resulted in necrotic conditions in these areas that I regard them as justified in asking for radiographs of the tissues round the apical ends of the crowned teeth.

DR. M. I. SCHAMBERG, New York: While it may be true that Dr. Fletcher and other members of this Section are active in the instruction of students in medical schools, this practice is far from being general. There is no reason why the student should be ignorant of this subject any more than any other branch of the healing art, and, moreover, the men should be compelled to pass their examinations on this subject, just as they would on the eye, the ear, the nose, the throat and other parts of the body. I do not believe that it is necessary for our Section to enter into a matter which can be so readily discussed elsewhere. I believe that this Section should be active in trying to do something rather than trying to solve something.

DR. THOMAS L. GILMER, Chicago: The importance of good hygiene of the mouth cannot be overestimated. Oral pathology should be better taught in medical schools. In general pathology physicians are usually well informed, but deficient in oral pathology. I think it would be most damaging to let Dr. Fletcher's statement go unchallenged that it is good practice to put arsenic on cotton in the roots of teeth and depend on it as a permanent antiseptic.

Arsenic has no place in the teeth at all. It will not remain at the end of the roots indefinitely, as an antiseptic. If a medicament is soluble it will not permanently remain in the root; if it is insoluble it is not an antiseptic. The idea of utilizing antiseptics as permanent root filling is impracticable. The apical ends of some pulpless roots become encysted even if they are not well filled, and such roots will do no harm. Radiographs, on the other hand, show that in some instances well-filled roots have blind abscesses at their apices.

I believe that we extract too few teeth; we used to extract too many. We can, however, in some instances cure chronic alveolar abscesses, which are incurable by medication through root canals, by resection of the offending part of the root and curetting the walls of the abscess.

DR. S. L. MCCURDY, Pittsburgh: The word "infection" has been, I think, used very loosely in this connection. A cyst on the end of the root may become an open cyst, may become infected and become an abscess. When we talk about bacteria on the end of the root of the tooth, the question arises, How did the infection get there?

DR. E. S. TALBOT, Chicago: I do not believe that the profession to-day is aware of the number of peridental abscesses that there are in the mouth. These abscesses lie dormant for years. I had a tooth extracted two weeks ago with a blind abscess on it which I believe to have been in my mouth for fifty-two years. When a boy, 10 or 12 years old, I had a toothache, and a country doctor tried to remove that tooth with the old-fashioned turn-key. He failed to remove the tooth, but he stopped the pain, and from that time to this I have never had any pain in that tooth. This tooth was afterward crowned, and it has been of service to me ever since until I was obliged to have it removed.

I honestly believe that these abscesses are doing a great deal of damage. I believe that arthritis is the result, but at present we have no direct proof. We know that pus is distributed directly into the blood from these abscesses; we know also that pus is swallowed every time we take food into the mouth. Do pus germs pass through the stomach when hydrochloric acid is present? Of course, hydrochloric acid is present only with digestion of foods. It is possible that these germs can pass through when hydrochloric acid is not there. This has not been really demonstrated. No one has found pus germs in the stomach at the present time. One man has found pus germs in the feces in some ten or twelve examinations.

DR. M. L. RHEIN, New York: I agree with Dr. Gilmer's criticism of Dr. Fletcher's technic in treatment of root canals, the end of which it is impossible to reach. The theory needs to be supplemented by scientific facts; not clinical data, but proofs that infection is impossible. The fact that Dr. Fletcher has had splendid results from sealing an infinitesimal amount of arsenic in the end of the canal is, to my mind, no proof that subsequent infection will not take place. If Dr. Fletcher will have a large number of such teeth on which he has operated in years past radiographed it will give us an opportunity to make a reasonable scientific deduction as to the results.

I do not agree with Dr. McCurdy that it is a complicated point as to the source of infection in this area. There are only two methods by which infection of these areas can be obtained: either through the mouth arising from the defects in the technical work of sealing the root canals and absorption of bacteria, or through the circulation at the end of the root. I am convinced that such infections as we have commonly looked on as the worst, in which there was an open fistula from the abscess with the patient swallowing pus in large quantities, was not nearly so detrimental to the patient as the little blind abscess at the end of the root. There is no question but that certain secretions in the intestinal tract destroy a portion of the swallowed pus. A root canal may be imperfectly filled and go for many years without any infection. I question the statement Dr. Talbot made in reference to the tooth in his own mouth, that this blind abscess had been attached to that root for fifty-two years. It may be that this abscess only appeared within the past few years. I have examined root canals that I have filled years before we had the radiograph, in which I thought at the time that I had reached the ends of the roots, and have found that the filling did not go to the very end of the canal. The space we speak of as the apical space was, however, in an absolutely physiologic condition. When Dr. Gilmer speaks of improper dental work resulting in the death of many people, he has not exaggerated one iota. If pulp canal work is done it is essential that the aseptic filling material should go to the very end of the canal if we want to have absolute assurance that secondary infection through the circulation cannot take place.

FIVE YEARS' EXPERIENCE WITH THE HIGH-CALORY DIET IN TYPHOID*

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Three years ago I called attention to a new principle in the dietetic treatment of typhoid, namely, the principle of supplying the patient with sufficient food to diminish materially, and in some cases to prevent, loss of nitrogen and weight.

The amount of food recommended exceeded that furnished by any diet hitherto employed in the treatment of the disease by 1,500 to 2,000 and more calories a day. Though the number of cases in which the diet had been used was not large, something less than fifty, the results had been so striking that it seemed desirable to advocate the principle publicly.

In the discussion which followed the reading of the paper, criticisms were made of the diet which, had they been justified, would have rendered culpable any further attempt to employ it.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

In the three years which have elapsed since the paper was presented, the study of the effects of the diet has been steadily pursued. The purpose of the present review is to report briefly the results which have been accomplished: The number and variety of foods employed have been increased; the absorption of the food has been studied by my assistant, Dr. Eugene F. DuBois; certain phases of the metabolism of patients while on the diet have been investigated with the aid of the "small" Benedict respiration apparatus, and clinical material has been accumulated. I shall consider, also, the most important criticisms which have been made.

The number of foods originally employed was limited. With added experience the number has been increased until now the diet furnishes considerable variety. The following foods have been given thorough trial and are recommended for appropriate cases.

TABLE 1.—FOODS AND THEIR CALORY VALUE †

Name.	Amount.	Calories.
Apple sauce	1 ounce	30
Bread	Average slice (33 grams)	80
Butter	1 pat (⅓ ounce)	80
Cereal (cooked)	1 heaping tablespoonful (1½ ounces)	50
Crackers	1 ounce	114
Cream (20 per cent.)	1 ounce	60
Egg	1 (2 ounces)	80
Egg, white	1	30
Egg, yolk	1	50
Lactose ‡	1 tablespoonful (9 grams)	36
Milk (whole)	(1 pint 350) 1 ounce	20
Potato (whole)	1 medium	90
Potato (mashed)	1 tablespoonful	70
Rice (boiled)	1 tablespoonful	60
Sugar, cane	1 lump	16
Sugar, milk	1 tablespoonful	36
Toast	Average slice	80

† Published in Am. Jour. Med. Sc., January, 1912.

‡ For practical purposes, the milk-sugar may be measured in a medicine glass. Each measured ounce weighs 18 gm. If milk-sugar is added to water in the proportion of 24 grams to 30 c.c. and the water brought to the boiling point, the milk-sugar is completely dissolved. Such a solution, made daily or just before use, will be found convenient in administering the diet.

The calory values given in Table 1 are approximate, for the most part, but are sufficiently accurate for practical purposes. The values stated are based on the tables of Atwater and Bryant, Schall and Heisler, Arnold's diet charts, and on weights taken in the hospital.

Other articles of food will probably be added from time to time as the effects of their administration can be observed. At present, the foods which I believe most likely to prove harmful are meat and its preparations (except small quantities of meat broth, given for the purpose of stimulating the appetite and for sake of variety), vegetable foods containing much cellulose, and fruits containing much cellulose and small seeds, such as berries.

The three most important objections which have been brought against the diet are: (I) that patients cannot digest and absorb the amount of food recommended; (II) that the amount of fat would inevitably cause alimentary disorders and acidosis, and (III) that, granting its absorption, patients do not require the amount of food which is advocated.

These objections arose in our own minds during the course of our investigations; one of them (the development of acidosis) had been answered by the careful studies of Dr. Shaffer; all of them appeared, on the basis of clinical observation, to be unfounded.

I. DIGESTION AND ABSORPTION IN TYPHOID PATIENTS

The objection that patients cannot digest and absorb the amount of food recommended is based on the prevalent notion that typhoid causes serious impairment of the digestive powers. This belief appears to be without foundation. While there can be no doubt that food may cause disorders of digestion in typhoid, their occurrence depends, in my experience, not so much on the quantity as on the method of giving it. Unsuitable foods will, of course, prove harmful.

Through the investigations of Pavlov we know that the digestive glands adapt their secretions to the kinds of foods which they are required to digest, and that changes in diet are followed by alterations in the characters of the digestive juices. These alterations take place gradually and sudden changes in diet, especially from a sparse to a rich diet, are likely to cause digestive disorders. Furthermore, individual peculiarities of digestion must be taken into consideration. These can be discovered only by testing the capacity of each patient for the foods allowed. But if proper attention is paid to these details, I believe it will be found that the great majority of patients may be given the amount of food they require not only without causing disorders of any kind, but with the disappearance of disturbances which previously existed. The studies of Kendall,[1] on the influence of diet on the intestinal flora, apparently furnish the explanation of the beneficial action of large amounts of carbohydrate on the condition of the intestine in typhoid. According to Kendall, the presence of available carbohydrate protects protein from the putrefactive activities of intestinal bacteria and prevents the disturbances which would result therefrom.

Intimately related to the ability of the patient to digest large quantities of food is his capacity to absorb them. Von Hoesslin investigated this problem thirty years ago and found that the digestive powers of the typhoid patient were only from 10 to 15 per cent. below normal, but the differences in the characters of the diets employed by von Hoesslin and by ourselves made it desirable that the subject be reinvestigated. As already stated, this has been done by DuBois, who will shortly publish his results. Briefly, they prove that the capacity of the typhoid patient to absorb large amounts of food is remarkable. The absorption of carbohydrate was practically complete, less than 0.5 per cent. being lost. The average loss of protein was 7.1 per cent. The average loss of fat in the active period of the disease, when the patients were taking from 147 to 200 gm., was 7.2 per cent.; in the steep-curve period and in convalescence, when the patients were taking from 150 to 258 gm., it was 4.5 per cent. The normal loss for similar diets is about 3 per cent., but, according to Rubner, the loss of fat may reach 7.1 per cent. in health.

II. AMOUNT OF FAT

The objection that the amount of fat recommended would inevitably cause alimentary disorders and acidosis has likewise been proved to be without foundation. The majority of patients treated have taken from 100 to 250 and more gm. of fat a day without disturbances of any kind. It is well known that fat inhibits the secretion of hydrochloric acid and delays the passage of chyme from the stomach, but neither of these actions has caused inconvenience to the patients. Moderate diarrhea has occurred in a few cases, but has ceased on withdrawing the cream. Duodenal regurgitation has not been observed.

Instead of interfering with digestion, there is reason to believe that fat aids the digestion of carbohydrate. Mixtures of fat and protein are known to be difficult to

1. Kendall: Jour. Med. Research, 1911, xxiv, 411

digest, but, according to Pavlov, the addition of butter (fat) to bread (carbohydrate) facilitates its digestion. The fat delays the passage of the carbohydrate from the stomach while the pancreas is elaborating the ferments for the digestion of both.

I cannot discuss at this time the general question whether large quantities of fat are capable of causing acidosis. The point at issue is whether fat, in the amounts given, causes acidosis in typhoid fever. By way of answer, it may be stated that no patient has presented any clinical evidence of the condition, the acetone bodies have not appeared in the urine and the ammonia nitrogen of the urine in some thirty cases has never exceeded 2 gm. and has usually been below 1 gm.

III. REQUIREMENT OF FOOD

It will be necessary to consider from the clinical as well as from the metabolic standpoint the objection that, granting its absorption, patients do not require the amount of food which is advocated. The effect of the diet on the patient has dominated the investigation from its inception. In general, the more food a patient takes, the better his physical condition. Patients lose weight when an apparent excess of food is not given. The largest amounts which have been administered have been reached in the attempt to satisfy the patients' hunger. Though this is clinical evidence, it possesses considerable value, the ultimate test of any method of treatment being the effect it produces on patients.

The study of the protein metabolism in typhoid has demonstrated that large amounts of food are required to keep a patient in, or nearly in, nitrogen balance. The maintenance of nitrogen equilibrium in fever probably signifies the optimum state of nutrition.

The total metabolism in typhoid has been studied previously chiefly on patients in the fasting state. Last fall, with Dr. DuBois, I undertook to investigate, with the aid of the "small" Benedict respiration apparatus, the total metabolism of patients on a full diet. Owing to the vastness of the field and the technical difficulties to be overcome, the investigation was confined, temporarily, to the study of the general effects of the diet on metabolism. Interesting results, however, were obtained. The greatest amount of heat produced by any patient was 48 calories per kilogram per day. The majority of patients produced around 35 calories per kilogram. Since the patients were at *absolute rest* during the period of observation (fifteen minutes), at least 10 per cent. must be added to cover the muscular work incident to moving about the bed. Only one of Grafe's fasting patients produced as much as 40 calories per kilogram; the smallest amount of heat produced by any of his patients during the febrile period was 28.5 calories per kilogram.[2] Rolly's figures are essentially similar.

Calculated on the basis of these figures, the high-calory diet furnishes from 1,000 to 2,000 more calories than are expended by the patient in twenty-four hours. So far, it has been found impossible to explain this discrepancy in the early stages of the disease, yet I am convinced from the clinical evidence that patients require the excess — they lose both nitrogen and weight if they do not receive it. In the later stages of the disease, the excess is utilized for the storing of fat, as is shown by the height of the respiratory quotient. In one instance the actual transformation of carbohydrate into fat was observed while the patient had a temperature of 102 F.

STATISTICS OF CASES

In Bellevue Hospital to Jan. 1, 1912, 183[3] cases were treated, of which forty-four were mild, fifty-seven severe and thirty-seven very severe. Twelve patients died, giving a mortality rate for the series of 8.69 per cent.

TABLE 2.—COMPARATIVE STATISTICS OF TYPHOID CASES WITH REGARD TO HIGH-CALORY DIET

Year.	B. H. & A. H. Total Cases.	B. H. & A. H. Total Deaths.	Diet Cases. Total.	Diet Cases. Deaths.
1907	...	...	9	0
1908	315	55	28	1
1909	258	37	39	3
1910	302	45	35	7
1911	229	32	27	1
	1,104	169	129	12 = 9.3%
	129	12		
	975	157 = 16%		

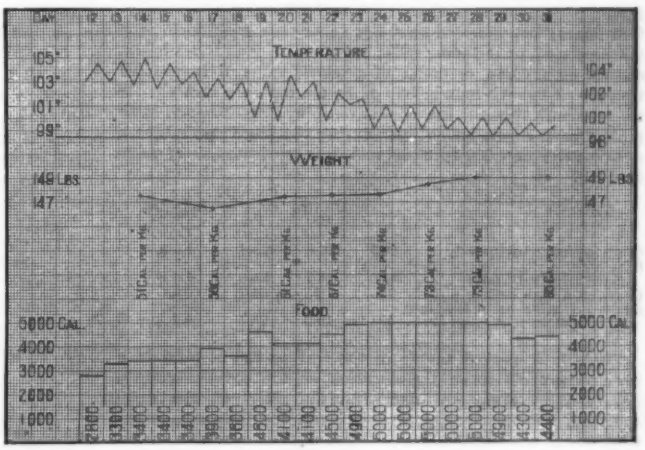

Chart showing temperature, weight and food-curves in a severe case of typhoid.

The comparative statistics of the cases of this series and of the department of Bellevue and Allied Hospitals permit the following conclusions:

Both mortality rates are abnormally high. As probably occurs in other large hospitals, not only the worst types of disease are admitted to the hospitals of the department, but many patients are brought in, apparently only to die, when treatment at home has proved unsatisfactory. All of these cases are included in the figures from which the conclusions are drawn.

Relapses occurred in 20 per cent. of the cases of the series.

Hemorrhages occurred in 13 per cent. of the cases.

Perforation occurred in one case.

The influence of the diet on the weight of patients is shown in the figure.

Reports from Convalescents: During the past year, patients have been requested to report at the hospital at intervals after their discharge. A number of them complied with the request and the records of their condition

2. Grafe: Deutsch. Arch. f. klin. Med., 1910, ci, 209.

3. Though a limited number of patients in other services of the department during 1910 and 1911 have been given more or less liberal diets, this series includes only patients who have been under my personal charge.

justify the statement that convalescence is materially shortened.

Since the foregoing communication is in part a review of work already published and in part a report of progress on investigations which are under way, I shall not attempt to draw conclusions from the new matter which it contains.

58 West Fifty-Fifth Street.

ABSTRACT OF DISCUSSION

DR. HAVEN EMERSON, New York: I have made an analysis of the 544 typhoid cases treated on the first, third and fourth medical divisions of Bellevue Hospital for the five years 1907-1911 as to the diets given and the death-rate, the incidents of complications and the occurrence of relapses. These were all the cases of typhoid fever in Bellevue Hospital during this time, except the cases in the second division, concerning which Dr. Coleman has made a detailed report. The cases I have analyzed were admitted in turn to the different divisions as were those on the second division. They represent, as nearly as clinical material can, cases similar in source, severity and duration before admission, to those observed by Dr. Coleman. Of the 544, 275 were fed exclusively on milk during the entire febrile period, a diet of from 1,000 to 2,000 calories in twenty-four hours; 156 were fed on a diet other than milk during the febrile period, or including milk, but containing at times broth, cereals, eggs, cocoa, or bread, of a caloric value of from 1,500 to 2,000 in twenty-four hours; 113 were fed on a diet similar to, or identical with, the diet advised by Dr. Coleman, with milk, cream, sugar, butter, etc., during the febrile period, of a caloric value of 2,000 to 3,000, and in many instances of 4,000 or 5,000.

		Deaths, Per Cent.	Compli-cations, Per Cent.	Relapses, Per Cent.
Cases on milk exclusively.....	275	15.6	25.4	4.3 A
Cases on a low caloric diet not exclusively milk.....	156	14.7	25.6	4.4 B
Cases on a high caloric diet...	113	8.8	24.7	6.1 C
Cases on milk or other low caloric diets	431	15.3	25.5	4.4 A + B

There is a marked saving in the cost to the hospital of a case of typhoid when the duration of the convalescence is abbreviated. From an observation of fifty of the cases reported, fed on a high-calorie diet, on the first and fourth divisions, I am impressed with the excellent condition of the patients at the end of the febrile period, and the rapidity with which they pass through a convalescence and are able to resume their work.

DR. S. SOLIS COHEN, Philadelphia: One may admit the correctness of Dr. Coleman's principle without subscribing to all the details of application. The statistical showing would be more conclusive if we were told at the same time whether the different services cited were comparable in all respects or whether there were other differences besides the special feeding; that is to say, whether hydrotherapy was used in one and neglected in the other; whether intestinal antisepsis was employed or not, and so on. So many factors influence the outcome that all ought to be taken into account, difficult though it may be.

DR. M. HOWARD FUSSELL, Philadelphia: During the past winter a main broke which resulted in the delivery of raw Schuylkill water instead of filtered water, and, as a result there occurred a large number of cases of typhoid fever. At the time I had charge of the wards of St. Timothy's Hospital and had under my care thirty-five cases during this time. Dr. Coleman's paper on high caloric feeding had already appeared in the *Journal of the Medical Sciences* and I decided to place these patients on this diet which had been so carefully worked out. The main thing that struck me was the feeling of well-being expressed by these individuals contrasted with the patients who were treated at other times with a different diet. Their general appearance was in such a marked contrast with the other cases that it could not help but be noted. Their convalescence was shortened. Of course, I realize that any consideration of the complications and the mortality have but little bearing in the consideration of so small a number of cases.

DR. J. I. JOHNSTON, Pittsburgh: While I have not been able to give such forced feeding as Dr. Coleman has, I have, during the past two or three years, been able to maintain what he holds as the minimum, that is, 3,000 calories for a person weighing 150 pounds. I have used largely milk, cream, sugar of milk, junket, custard and gelatin. Sixty patients and more treated along this line have given results so favorable that because of the small number in this group, one hesitates to report such good results to this society. From a large experience with typhoid, this plan has given the greatest satisfaction. In every case pains were taken to maintain the weight. Among these sixty cases the average loss of weight represented one-tenth of the previous body-weight. This is a different picture from that seen a few years ago. With regard to the use of the carbohydrates there is one striking feature that Dr. Coleman has referred to; namely, its relation to toxemia. Many of these patients that are brought into the hospital often require restraint, the majority being mill workers and very strong physically. It was very striking that after forty-eight hours of carbohydrate feeding, the toxemia disappeared and the patients were then easily managed. I then pushed the diet up to 3,000 or 4,000 calories and their nutrition was maintained. As I said, I hesitate to report on sixty cases, but I have had among these one perforation, two cases of hemorrhage and only three deaths.

DR. G. A. WARREN, Black Rock, Ark.: Dr. Coleman, in referring to the high-calorie diet employed, said, and very aptly, that a great deal more of caution should be given in the preparation of the diet than in what we give. I think that great care should be taken to have the food prepared by someone who understands the proper preparation. No vegetables with their large amount of cellulose should be allowed, and whatever is sent to the patient should be carefully scrutinized by the nurses. Regarding the use of this diet in patients who have absolute anorexia: does Dr. Coleman give this diet uniformly to such patients? It seems to me that going to them so often with a cup or spoon must be an annoyance, especially when they do not want anything. I think that he has hedged somewhat when he spoke regarding the liberal diet; he spoke of excluding vegetables with the high percentage of cellulose, meats, and so forth. I have seen a patient given meat during convalescence; perforation and death followed. I have seen a patient who was convalescing given apples and another who was given poor jelly; each died within twenty-four hours. I have seen a patient given potatoes and another that was given cabbage during convalescence; each died within twelve hours. All these patients were well advanced in convalescence and had shown few signs of serious involvement of the intestines. I should give the diet mentioned by Dr. Coleman with a "good deal of salt."

DR. M. L. GRAVES, Galveston, Texas: It was my privilege three or four years ago to see a number of cases of typhoid fever in Bellevue Hospital that were under this system of treatment and I was pleased with the appearance of these patients, with the absence of the more serious manifestations of the disease such as delirium, insomnia, restlessness, and I was gratified at the results they were obtaining. We have had many cases of typhoid in Galveston. My method of treatment, however, is somewhat different from Dr. Coleman's. I have been experimenting with low calorie food values. In comparing the results one must consider the possibility of variation in severity of the infection. My cases run a temperature about like his and we have few complications affecting the heart, peritonitis, pleuritis, and so forth, but with less degree of frequency than was seen on the Atlantic seaboard. Dr. Coleman fails to admit that it is not necessary to give food containing such high caloric values; that is one objection to his treatment. He is feeding his patient at times from 3,000 to 5,000 calories a day.

According to Atwater and Sherman and others, those undergoing severe exercises need only from 4,000 to 6,000 calories a day to maintain their equilibrium; and Atwater estimates

that an ordinary day worker only requires 2,500 calories. Dr. Chittenden says that he maintained the body weight under 1,600 calories a day while working in his laboratory though I believe he lost from 10 to 12 pounds at the beginning. If all this be true it seems to me that Dr. Coleman has not established the fact that patients require such a large caloric diet as has been presented to us. I do not know whether he has the bowels moved—how often the contents are ejected from the body and how much caloric value is lost—a point which I think is of value in a study of this kind. I have treated many cases on a low caloric value, often below 1,000 heat units per day.

During the past fiscal year I have had no deaths among fifty-one cases. I went on the principle enunciated by Munk that milk, eggs, and meat products, such as soups and broths, are 97 to 99 per cent. absorbable. This left only 3 per cent or 1 per cent. of non-absorbable residue which had to pass through the bowels. If any patient can be placed on a diet and can absorb 98 per cent. of it, you can get a sufficient caloric value and you need not move the bowels every day. These patients should not be purged every day in your efforts to keep down distention. Distention is often due to paresis of the bowel rather than fermentation. With such a large absorption of food, and with such a small residue there should be no occasion for purgation.

DR. WARREN COLEMAN, New York: I believe that the method of treating typhoid fever in Bellevue Hospital is essentially the same for all divisions, except in the matter of baths and feeding. Some of the visiting physicians employ the tub-bath; some believe spongings sufficient. I believe that if we give enough food, hydrotherapy becomes unnecessary in the majority of cases. The majority of the visiting physicians give more food than formerly, though I believe that the second division is the only one in which the high calorie principle is fully carried out. The disappearance of the toxemia is one of the most interesting results of giving sufficient food. We have observed it in many cases. Food which contains an indigestible residue should be excluded from the diet. I have used other foods than those on the chart but am not ready yet to recommend them. As to the care of the bowels, I order a simple saline or soapsuds enema every morning. Usually this is all that is required. As stated in the paper, Dr. DuBois has studied the absorption of the high calorie diet during the last two years and has found that the food is almost completely absorbed. Very few studies have been made on metabolism in typhoid. Krauss published interesting observations in 1890. Later work, until 1909, when Grafe's studies appeared, was apparently vitiated by errors of technic. Our own results have not been published. We have records of about 100 respiratory quotients, from which we have calculated the amount of heat produced by the patients in twenty-four hours. An amount of food just sufficient to cover the heat production will not protect a patient against nitrogen and weight loss. In other words, he will be partially starved. I should like to ask Dr. Graves why a typhoid patient should be starved. Why should he not be given the food he requires? Dr. DuBois' studies show that the patient digests it. I do not believe that a patient suffering from any acute infective disease, except perhaps one affecting the alimentary tract locally, is benefited by starvation.

Simplest Method of Obtaining Blood-Serum.—Y. Sakaguchi places a sterilized stick or a piece of fine wire, with the bent end down, in the reagent glass or centrifuge glass holding the blood. The stick or wire must be perfectly dry. The solid part of the blood as it coagulates will cling to the stick or wire and can be lifted out with it, thus leaving the serum alone behind. He states that in applying the Wassermann test over five thousand times, he has found this simple and easy method effectual and reliable; the only point to be borne in mind is to wait until the clot has entirely formed as otherwise the serum is left turbid and tests with it are liable to be misleading. He calls attention to this method in the last *Dermatologische Wochenschrift*, 1912, lv, 875.

THE ACTION OF SUBDURAL INJECTIONS OF EPINEPHRIN IN EXPERIMENTAL POLIOMYELITIS *

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In 1903 Meltzer[1] showed that a subcutaneous injection of epinephrin caused a marked change in a local inflammation such as is produced by inoculating cultures of *Staphylococcus aureus* or a drop of turpentine into the soft tissues of the rabbit's ear. The effect consists in a contraction of the actively hyperemic vessels at the periphery of the inflammatory area, while the more severely injured vessels within the inflamed focus remain unaffected. The contraction diminishes the transudation of fluid, the so-called lymph, from the hyperemic vessels, and thus reduces the local edema.

The lesions of poliomyelitis are associated with profound alterations of the blood-vessels, and are attended by transudation of fluid and emigration of white corpuscles from the altered vessels. The degree of vascular and interstitial changes varies in intensity in different cases and at different levels of the spinal cord. The vessels immediately within the focus of main injury are severely, while those at the margin of injury are often slightly affected. It is characteristic of lesions of certain cases of poliomyelitis in man and also in the monkey, although to a less extent, to be progressive, while in still other cases the lesions become quickly localized. This progressive tendency is most serious and alarming when the paralysis is of the ascending type and threatens the origin of the nerves controlling respiration and in especial those that supply the diaphragm. There is reason to believe that in the course of the ascent of the lesions slighter hyperemic states of the vessels attended with exudation precede the severer alterations of the vessels in which the perivascular cellular infiltration is extreme and the hemorrhagic eruptions large.

In view of the pathology of poliomyelitis as briefly outlined, the hyperemic vessels at the periphery of the lesions should be subject to the influence of the contracting effects of epinephrin. This response of the vessels should bring about a cessation of the exudation through which the dangers arising from the presence of an inflammatory edema on adjacent nerve-cells, which themselves are not the seat of direct injury, may be averted. Such an action might come to be very important and even life-saving in cases in which the nerve-cells that preside over the function of the phrenic nerves are involved. This temporary benefit could conceivably be converted into a permanent one by the cessation of the ascending lesion through the ordinary processes of limitation that are constantly encountered in cases of human poliomyelitis.

Moreover, the peculiar action of epinephrin on the vessels in the actively hyperemic area in contradistinction to the center of inflammation will suffice to indicate the nature of the pathologic process responsible for the ascent of the lesions. If the ascent arises from a continuous involvement of nerve-cells, epinephrin will be without any effect; but if it is produced by consecutive vascular involvement, then it may bring about a definite ameliorative action.

That epinephrin can be injected into the subdural space without danger to life has been shown through its

* From the Laboratories of the Rockefeller Institute for Medical Research, New York.

1. Meltzer, S. J., and Meltzer, Clara: Jour. Med. Research, 1903-1904, x, 135.

employment in combination with cocain in the production of spinal anesthesia. Auer and Meltzer[2] have recently shown that the subdural injection of suitable quantities of epinephrin in the monkey does no harm and produces a characteristic action on the blood-pressure. This action consists in a slow but considerable rise and a gradual fall of the pressure. The duration of the rise is longer than after an intravenous injection, in some instances more than half an hour. The fall of blood-pressure occurs so slowly at times that the original level is not reached during a period considerably over an hour. Incidentally it may be mentioned that Meltzer[3] has found that epinephrin is destroyed by the cerebrospinal fluid taken from patients with poliomyelitis.

At Dr. Meltzer's suggestion I have studied the action of subdural injections of epinephrin[4] on monkeys paralyzed after intracerebral inoculations of the virus of poliomyelitis. The virus employed is one that invariably causes a fatal ascending paralysis or a rapidly fatal paralysis of respiratory centers in the medulla. In the former instance death results from the inclusion in the ascending process of the nerve-cells from which the phrenic nerves arise. The animals selected were such as were already extensively paralyzed or were moribund and would have survived only a short time longer. They were limp, lay without movement except for superficial respiratory movements of the chest, and they were usually in a semiconscious or even unconscious state. The life of none of these monkeys was actually saved, but it was often greatly prolonged,[5] while the effects of the epinephrin on the general condition of the dying animals were often remarkable. I shall now give in brief form a few illustrative protocols.

Protocol A.—Macacus rhesus. Nov. 9, 1911: Animal completely prostrate, moribund; breathing is feeble, slow, almost entirely diaphragmatic; only slight response to mechanical stimulation; eye reflexes slight. At 1:30 p. m., 1.5 c.c. of 1:1,000 solution epinephrin injected subdurally. At 3 p. m.: Breathing more rapid and deep; good response to mechanical stimulation; eye reflexes stronger. The animal appears bright. At 4 p. m.: In response to mechanical stimulation the left arm is moved inward and to some extent in the upward direction. The animal is bright and entirely conscious. The improvement in the paralysis can be followed from above downward. Animal turned on left side, the less paralyzed side. At 5 p. m.: No heart beat; pupils dilated; animal dying from asphyxia.

Protocol B.—Macacus rhesus. Feb. 19, 1912: Back, right arm, and leg paralyzed; prostrate; tremor of head; excitable.

February 20: Animal moribund: breathing feeble and shallow; little tonus in arms or legs; semiconscious. At 10 a. m.: 1.5 c.c. of 1:1,000 epinephrin injected subdurally. No immediate effect. At 10:30 a. m.: Consciousness has returned and respirations are accelerated. The animal eats part of a banana offered. At 10:45 a. m.: Respirations deeper. At 11 a. m.: Marked increase in the tonus of arms and legs; some voluntary motion. At 12 m.: Animal appears bright, raises the head, and uses all of the limbs somewhat; respirations rapid but fairly deep. At 1 p. m.: Voluntary movements greater. At 3 p. m.: Marked improvement; respiration about normal. The animal takes food eagerly. At 4 p. m.: The tonus in the arms is diminishing; animal still bright. At 4:30 p. m.: 4 c.c. of 1:2,000 epinephrin injected.

February 21: At 9 a. m.: The animal is still bright and eats, but the muscles of the legs have lost in tonus. Uses right arm somewhat and left to a less degree. The condition persisted unchanged throughout the day.

February 22: Animal remains bright; has eaten a whole banana. The extremities still show tonus.

February 23: Animal is growing weaker and appears less bright. At 12 m.: 1 c.c. of 1:1,000 epinephrin injected. No marked improvement.

February 24: Monkey developed a severe diarrhea during the night. Weaker and less tonus in arms and neck. At 12:30 p. m.: 2 c.c. of 1:2,000 epinephrin injected subdurally. At 7 p. m.: Animal weaker. Diarrhea continues.

February 25: The animal gradually failed and died in the morning.

Protocol C.—Macacus rhesus. Feb. 24, 1912: Animal prostrate; little tonus in either legs or arms. The left leg and both arms respond slightly to mechanical stimulation; paralysis of the muscles of the neck; respirations feeble. At 1 p. m.: 1.5 c.c. of 1:1,000 epinephrin injected subdurally. At the end of half an hour there is no noticeable change. Improvement sets in a little later, and at 7 p. m. the animal appears bright, the neck muscles stronger, and the respiration improved.

February 25: The paralysis of the limbs has increased; the respirations have become somewhat more shallow but are better than before the injection. A second injection of 1 c.c. of epinephrin was given, but without producing pronounced change.

February 26: The animal was found dead in the morning.

Protocol D.—Macacus rhesus. March 4, 1912: Arms and back weak but not completely paralyzed; the left arm and leg weaker than the right. At 10 a. m.: 1 c.c. of epinephrin injected subdurally. At 6 p. m.: No evident improvement following the injection; the paralysis has progressed somewhat.

March 5: The animal is prostrate; back, neck, and four limbs all paralyzed, but not completely. At 10:15 a. m.: Epinephrin 1.5 c.c. injected. At 12 m.: The animal is brighter, eats; the muscles show increased tonus; respiration strong.

March 6: This morning the respiration is somewhat irregular, fifty-four to the minute; monkey cannot move arms or legs. The respiration is still fairly strong and both the intercostal muscles and the diaphragm are in use. At 11:30 a. m.: 1.5 c.c of epinephrin injected, and at 5 p. m., 1 c.c. of epinephrin injected, without producing any change in the extent of the paralysis of the extremities.

March 7: The respiration has become more feeble. At 12 m.: 1.5 c.c. of epinephrin injected. At 4 p. m.: The respiration is almost wholly diaphragmatic and is feeble and shallow; 1.5 c.c. of 1:1,000 epinephrin injected subdurally.

At 5 p. m.: Respiration shallow, expiration forced.

March 8: During the night the animal has improved; the respiration is not forced. At 11:30 a.m.: 1.5 c.c. of epinephrin injected; no obvious response to this injection. The animal is gradually becoming more feeble.

March 9: Respirations shallow and labored; expiration forced. At 10:30 a. m.: 1.5 c.c. of epinephrin injected. At 10:45 a. m.: Respirations become deeper and more rapid, but forced expiration still continues. At 5 p. m.: The animal died.

The illustrative protocols given indicate that a subdural injection of epinephrin is capable of producing a marked change in the character of the paralytic phenomena in experimental poliomyelitis, although the effects are not equally striking in all cases. The general result was an improvement in the muscular tonus of the paralyzed muscles and in the respiratory movements. In some animals (Protocols A, B and D) the effects were striking, and a state of extreme flaccidity and unconsciousness with almost complete disappearance of reflexes was succeeded by one of tonus, of strengthened reflexes and of return of consciousness. Life was undoubtedly prolonged in these cases. In the other case (Protocol C) there is no definite proof that life was prolonged, and the symptoms were only moderately ameliorated. An examination of the two classes of cases would seem to show that the employment of the epinephrin relatively

2. Auer, J., and Meltzer, S. J.: Proc. Soc. Exper. Biol. and Med., 1912, ix, 79.
3. Meltzer, S. J.: Proc. Soc. Exper. Biol. and Med., 1911, ix, 27.
4. The brand of epinephrin used in the studies was the adrenalin chlorid of Parke, Davis & Co.
5. See Flexner and Lewis (Jour. Exper. Med., 1910, xii, 227) for the clinical history of cases of experimental poliomyelitis in the monkey.

early in the course of paralysis does not in the monkey inoculated intracerebrally with a highly active virus bring about an arrest of the progress of the disease. The life-saving action of the epinephrin is shown in the case of the moribund animals, in which life was prolonged either for several hours or for several days by the restoration of the failing respiratory function.

Finally, the effects of epinephrin in the experimental poliomyelitis support the view that a state of hyperemia of the blood-vessels attended by an exudation of plasma and probably of cells also precedes the severer state of destruction of nerve-cells and interstitial tissue of the spinal cord. They indicate further that subdural injections of epinephrin in proper doses may be found capable of averting in human beings, the subjects of ascending forms of poliomyelitis, a fatal issue through the involvement, in the extending hyperemia and inflammatory edema, of the nerve-cells from which the phrenic nerves take their origin. Should this temporary interruption of the active pathologic process coincide with the natural limitation of the disease, even life may be spared. The experiments do not indicate that epinephrin itself contributes in any way to the promotion of the limitation of the lesions. Epinephrin is not a curative drug in the sense that it acts on and neutralizes the poliomyelitic virus. Any favorable effect that it may produce results from its action on the blood-vessels and the consequent control of exudation.

A RARE FINDING IN A SUSPECTED CASE OF PULMONARY TUBERCULOSIS

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During the month of November, 1911, a case was brought to the female medical ward of the Metropolitan Hospital. The patient was a colored woman, aged 57; her family history was negative. The patient's personal history was practically negative, with the exception of having had variola fourteen years ago. Physical examination showed the very ear-marks of pulmonary tuberculosis; hence the patient was transferred to the service of Dr. W. S. Mills of the tubercular division. All laboratory manipulations failed to reveal the tubercle bacillus. Repeated examination of the sputa, etc., proved negative for tubercle bacilli. Râles, distant bronchial breathing and, on percussion, cavity formation, or what appeared to be such, could be plainly mapped out.

The patient was treated in the regular routine manner as are all patients of a similar malady in this hospital and she appeared to be improving, while her dyspnea, at times, would show signs of disappearing.

The patient died Jan. 14, 1912. A post-mortem examination, performed, with my assistance, by Prof. John H. Larkin of Columbia University, revealed remarkable pathologic findings. Dr. Larkin, pathologist to the City Hospital for a number of years, believes this to be the second case of its kind from over 10,000 post-mortems that he has performed. In this instance, not even the ordinary and usual calcified and healed tuberculous areas that are so common in the average post-mortem examinations were found. The primary condition was endothelioma of the pleura with metastasis to most, if not all, of the viscera of the body.

Autopsy.—Heart: Musculature in the left ventricle showed a metastatic nodular growth measuring about 2 mm. Lungs: Both apices were transformed into hard nodular masses; certain areas showed disintegration and that of the lower right lobe posteriorly showed nodular growth invading the pleura. No tuberculous areas were found in either lung. Liver showed a number of nodular metastatic growths in the active stage of disintegration. Kidneys showed several metastatic growths, the pelves of both being involved; other viscera, etc., gave negative findings.

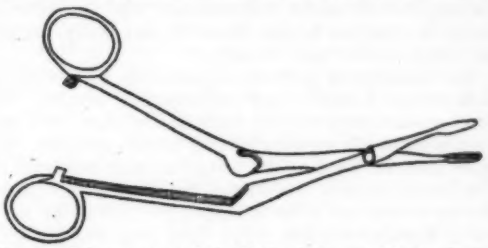
Anatomic Diagnosis.—Primary endothelioma of the pleura with invasion of the upper lobe of the right lung, tumors showing active disintegration. Metastatic endothelioma of the liver and kidneys and metastatic growth in the septum of the left ventricle of the heart.

A NEW TONSIL FORCEPS

OSCAR WILKINSON, A.M., M.D., WASHINGTON, D. C.

When one considers how many instruments have been devised for the removal of tonsils it requires some temerity to offer a new one, but I have found the forceps illustrated below so very useful that I venture to offer it to the profession.

This forceps is angular, which enables the operator to grasp the tonsil in such a manner that his hand does not obscure the view of the field of operation. It is constructed so that the end does not bite a piece out of the tonsil but holds it firmly between the jaws, which enables the operator to make sufficient traction to pull the tonsil out of its bed, so that its outline can be readily determined. I had it made with a catch in the handle, so that when the tonsil is once grasped there is no chance of the grip on it being loosened.



New tonsil forceps, as made by McKee & Co., Washington, D. C.

When operating I use two of these instruments, and I find them of especial value in doing the tonsillectomy. By first grasping the tonsil near its upper portion the outline of its upper part can be brought into view, and by grasping the uppermost edge of the capsule with a second forceps it is an easy matter, with a dull dissector, to get in behind the tonsil, which everyone knows is the most difficult step in doing enucleation of the tonsil in its capsule.

1408 L Street N.-W.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ARTICLES ACCEPTED FOR N. N. R. APPENDIX

H. K. Mulford Co., Philadelphia.

Syrup of Quinine with Chocolate.—Each 100 C.c. is said to contain in suspension, quinine sulphate 2.156 Gm. (10 grains in a fluidounce), chloroform as a preservative 0.431 Cc. (2 minims in a fluidounce), yerba santa (eriodictyon) a trace, in a syrup flavored with chocolate and vanillin.

Ointment Cargentos and Ichthyol.—An ointment said to consist of cargentos (colloidal silver oxide) 5 per cent. and ichthyol 5 per cent. in a base consisting of petrolatum, with a small amount of yellow wax, 90 per cent.

Put up in collapsible tubes.

Therapeutics

SENILITY

Senility is a relative term. A person may be old and not senile, or he may be middle-aged and senile. If a man grows old normally he develops cardiovascular-renal disease and dies of arteriosclerosis, angina pectoris, chronic cardiac insufficiency, sudden cardiac failure, apoplexy or chronic interstitial nephritis. The initial symptoms are at first increased; then follow increasing blood-pressure, dyspnea on exertion, palpitation on exertion, slight cardiac pains, more or less indigestion, more or less intestinal fermentation, more or less insomnia, increased frequency of urination, and often an increased amount of urine passed in twenty-four hours, slight edema of the feet and ankles toward night, perhaps occasional attacks of dizziness, and perhaps recurrent attacks of acute indigestion. The majority of individuals put on weight after 40, but many patients lose weight as old age advances.

The findings on physical examination vary with the stage of the sclerotic and degenerative process. The blood-pressure may be very high, and if above 200 mm. there is generally an insufficiency of the kidneys. The pulse may be regular, or irregular and intermittent. The heart-action is sturdy in the first stages of the process, because of some hypertrophy. Later the heart-action becomes weaker. The face may flush readily, and the skin may have its circulation so disturbed as to have various eruptions, more especially eczemas. The skin may be dry; perspiration may be diminished. The urine is likely to be large in amount, of low specific gravity, and to contain irregular, intermittent traces of albumin, and many times hyaline or granular casts. As above stated, various kinds of indigestion may be present. If the patient is gouty or rheumatic, various joint symptoms are added to the above. More or less headaches, often occipital, are likely to occur.

Any or all of these signs and symptoms may occur at almost any age, depending on when the degenerative process begins. Serious illness, especially infections such as typhoid fever or septic processes or repeated more simple illnesses, repeated anesthesias, syphilis and sometimes severe early athletic work may cause the symptoms, which are termed in later years "senile," to develop any time from the age of 35 upward.

INDICATIONS FOR TREATMENT

The presence of the senile process is an indication for certain lines of management and treatment, whatever the age may be. The indications for treatment may be summarized as:

1. To stop the ingestion of foods, drinks and drugs that would cause irritants to circulate in the blood and thus raise the blood-pressure, promote endarteritis, and irritate the kidneys.

2. To lower the blood-pressure and thus relieve the heart of extra work and relieve the force of the blood-stream in the cerebral arteries which are so susceptible to degeneration and subsequent rupture.

3. So to regulate the diet as to keep up nutrition and proper muscular strength.

4. To prevent, if possible, fermentative and putrefactive changes in the intestinal canal.

5. To prevent insomnia, one of the greatest and most potent causes of nervous irritability, and promote the greatest of all methods of conserving all of the wonderful processes of the human body, namely, sleep.

6. To stimulate to normal activity the emunctories of the body; in other words, to regulate the excretions of the bowels, kidneys and skin.

LINES OF TREATMENT

1. The best diet for a patient with the premonitory symptoms of cardiovascular-renal disease cannot be rigidly outlined. Each patient must be individually studied. As a scheme the following is of value: Such patients should ordinarily be restricted to meat once a day; to such vegetables as do not cause the patient to have flatulence; such milk and cream as he is able to digest without gastro-intestinal disturbance; such fruits as agree with him best; restriction of tea and coffee often even to the point of interdicting their use altogether, on account of the caffein element; almost invariably total abstinence from alcohol; the tobacco used must be reduced in amount and sometimes absolutely withdrawn. Sometimes it is wise and necessary to stop the ingestion of all meat and fish. A patient under rigid diet must, however, be carefully watched to note that the weight is not reduced when reduction is not desired, that more indigestion is not caused, and that the patient's strength is normal.

Drugs that are likely to cause an increased blood-pressure or increased nervous irritability and tension, or are excitants should not be used unless the indication for them is positive. Such drugs are most of the cardiac tonics and stimulants, strychnin, quinin and salicylates.

2. The blood-pressure will be reduced by the above diet. Iodids in small doses, as 0.10 or 0.20 gm. (about 2 or 3 grains) three times a day seem to act for good in this high blood-pressure condition. While not actual vasodilators, iodids stimulate the thyroid gland, and they seem to be the best drugs to prevent the advancement of sclerosis. If the patient is overweight, the pulse is slow, the skin is dry and there is tendency to puffing without edemas, thyroid is generally indicated. The dose should be a physiologic one, such as one 2- or 3-grain tablet of the dried gland, given once a day. Contra-indications for this treatment or for the iodid treatment would be an increased nervous irritability. This in such patients would be rare.

Nitrites in some form, depending on the individual choice of the physician, are always valuable. While nitroglycerin acts quickly in causing vasodilatation and its action is quickly over, given regularly, three or four times in twenty-four hours for a considerable period, it most certainly does tend to lower blood-pressure. This is attested by the testimony of many clinicians from careful observation. Dizziness and a feeling of fulness in the head due to high blood-pressure are almost invariably improved by the administration of nitroglycerin in small doses, given after meals for gradual and slow absorption. If a tablet is dissolved on the tongue or given on an empty stomach, the sensations from nitroglycerin (if the preparation is a good one) are unpleasant and undesirable. The full-headedness, flushing of the face and headache are undesirable and unnecessary. The proper dose of nitroglycerin for a patient in the above condition, i. e., with high blood-pressure, will be found by investigation. He may require a 1/100-grain tablet three times a day, after meals, or 1/200, or even 1/400 may be sufficient and may act for good, as small as such a dose seems to be. Needless to say, the preparation of nitroglycerin must be active. Nitrite of sodium may be used in 0.05 gm. (or 1 grain) doses, but it sometimes causes gastric irritation.

The blood-pressure may be lowered and the patient's whole general condition improved by body-baking properly carried out, by repeated applications of high-frequency currents, "autocondensation," as it is termed, and by Turkish baths, if the patient's heart and arteries are in good condition, and the heat does not cause unpleasant head symptoms; by physical exercise, not too severe, typically by golf-playing or by walking, horseback-riding or other exercise that is not strenuous. Anything that promotes perspiration or the circulation in the skin or muscles, even massage, will lower blood-pressure and benefit these patients.

3. This indication must be considered in conjunction with the first, but it is an important indication. While the patient is under a restricted diet and increased eliminative treatment, the weight should be watched, the heart strength and muscular strength noted, and the general well-being of the patient taken into consideration. A too restricted diet, or a diet that causes more intestinal indigestion, or a diet that leaves the patient breathless, or a diet or drug that causes a blood-pressure too low for the comfort of the individual, causing faintness or lack of strength on the least exertion, calls for a change. Therefore such a patient should be watched while under management (which is the phrase that should be used) as carefully as is a convalescent tuberculous patient. In other words, he cannot manage himself. At such a time as he does become or is greatly improved, the proper diet and exercise for his welfare, and the proper regulation of his life can be outlined, and the physician need not then see him for months at a time. It is always well, however, for patients who have shown these positive premonitory symptoms of coming cardiovascular-renal disease to have, at least once in two months, the blood-pressure taken, the heart-action noted and the renal sufficiency determined.

4. There is no question that most of these patients have intestinal indigestion and colon putrefaction more or less in evidence. The withdrawal of meat, or at least its ingestion in small amount will alone diminish this condition. Proper movements of the bowels, whether found best by daily salines if the patient is strong and sturdy, by vegetable cathartics, or by more exercise, abdominal massage or abdominal gymnastics, will also prevent putrefactive changes in the intestines. Various lactic acid preparations, soured milk, yeast, etc., are all of value and may be utilized in some cases for longer or shorter periods. Some patients whose blood-pressure is not too high and whose nutrition is not sufficient are improved by the ingestion of skimmed milk. Considerable nutriment is thus acquired, and the digestion of it is much easier than that of ordinary milk. On the other hand, large amounts of liquid of any kind should not be given when the blood-pressure is high if there is arteriosclerosis, a weakening of the heart or insufficiency of the kidneys. Such method of increasing elimination under these conditions is not good treatment. The so-called bowel antiseptics may be used for a short space of time, but are rarely advisable for any length of time. Phenol derivatives are not advisable in high blood-pressure or when the kidneys are at all disturbed. If the stomach digestion is not good, although there is no gastritis, as evidenced by gastric flatulence, more or less pyrosis and a coated tongue, dilute hydrochloric acid in a dose of 5 drops in a wineglass of water, three times a day, after meals, is good and efficient treatment, and one of the best antiseptics that can be offered. It not only increases and makes more rapid the digestion in the stomach, but also is a stimulant to all the intestinal digestive fluids.

The mouth and teeth must be studied. If the teeth are bad they should be either removed or filled. If there is pyorrhea alveolaris, mouth-washes and antiseptics should be used daily.

5. The sleeplessness of these patients is generally due to two things: (1) the absorption of the products of intestinal indigestion; (2) high blood-pressure. Sleeplessness may be due to a vasomotor ataxia — in other words, an irregular blood-pressure, especially when the heart is slightly weakened. These patients are sleepy when they are sitting up in the evening perhaps trying to read, and are wakeful the moment they lie down. Patients who cannot sleep at night should not take tea and coffee after the noon meal, should not receive strychnin, quinin or any cardiac stimulant later than the noon meal, if such is needed at all. Such patients sleep on a 1/200 or 1/100 grain tablet of nitroglycerin, taken just before bedtime. This slight lowering of the blood-pressure seems to be just sufficient to allow sleep. Hypnotics may be needed. If they are, they had better be of the bromid or chloral type, but such should not be long administered. In very old people a physiologic dose of alcohol at bedtime, sufficient to dilate the peripheral blood-vessels, is a proper use of this substance.

In patients who have had high blood-pressure and cardiac insufficiency has developed, small doses of digitalis may be the best sleep-producer that can be offered. Such doses should be given after the evening meal. Of course the use of digitalis in arteriosclerosis or in a heart that has become insufficient from high blood-pressure, or in a heart that is hypertrophied and that is insufficient from kidney insufficiency, or if the kidneys are markedly insufficient, is a subject for individual decision with the individual patient.

6. This indication has been met by much of the advice above given. Catharsis should not be overdone or the patient may become weakened. Exercise should not be overdone to promote the elimination of the skin, if exhaustion is caused or if the heart has not the strength for such exercise. The amount of liquid ingested should depend on the blood-pressure and the amount of output from the kidneys. It is not advisable to push water medication or so-called medicinal waters when the amount of urine passed is already sufficiently large; neither is it advisable to give a patient large amounts of water before bedtime and make him arise two or three times in the night to urinate.

ACUTE DISEASE OCCURRING IN ELDERLY PATIENTS

As is noted by all clinicians, but perhaps sometimes forgotten by all of us, elderly patients do not present the same set of symptoms in the typical way as do younger patients when attacked by acute disease. A pneumonia, for instance, starts insidiously, often as a central pneumonia, may have the physical signs almost absent, and there may be low temperature. Typhoid fever may occur in an elderly patient and may give so few symptoms as to make a diagnosis difficult for a week or more. Whatever acute disease these patients may have, the ordinary management must be modified by the fact that the patient is senile. They are often more or less anemic, there will be more sleeplessness, they are more likely to have weak, irregular heart-action, and they are more likely to have the kidneys suddenly cease to act. Prostrating catharsis should not be caused. Severe, strenuous applications of cold and cold bathing should never be allowed; and yet with proper management a senile patient may go through serious illness or a serious operation with perfect success.

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[For other information see second page following reading matter]

SATURDAY, AUGUST 3, 1912

SOME FEATURES OF ANAPHYLAXIS

The phenomena of anaphylaxis have given evidence of a power of adjustment or response of the organism to certain specific conditions little short of marvelous. The final explanation of what takes place within the tissues involved when an animal becomes sensitized by the injection of a millionth of a gram of egg-albumin still remains to be determined. It has been most baffling, to say the least, to find it possible to induce conditions of profound shock and physiologic unbalance by supposedly inert proteins in quantities far smaller than those which characterize the dosage of our most potent drugs and familiar poisons.

Friedberger[1] has ventured an explanation of the mechanism of these responses which has received widespread notice. According to this the injected protein or sensitizing antigen induces the formation of an antibody which has the properties of an enzyme. When a reinjection of the protein is undertaken after a suitable intervening period it becomes digested by the proteolytic antibody; and the digestive reaction is assumed to give rise in these cases to intermediary chemical products which are the real toxic agents in the initiation of the anaphylactic seizures.

The peculiar behavior of foreign protein when it is introduced into the body with avoidance of the alimentary tract — that is, parenterally — is well appreciated. Heilner[2] has observed that whereas serum protein, for example, is speedily metabolized when fed by mouth, so that its nitrogen reappears in the urine within a few hours, it behaves quite differently when introduced subcutaneously into the body. In the latter case the evidence of its metabolism may be delayed several days. This observation has led Heilner to assume that the organism gradually responds to the introduction of such foreign proteins into the blood-stream by the production of enzymes which are not ordinarily present therein but which are adapted to disintegrate the new protein. The development of proteolytic enzymes under these circumstances has been stoutly maintained by Abderhalden also.[3]

In his more recent studies Heilner has observed that if a second parenteral injection of protein is made within the preanaphylactic period — that is, the latent period during which the shock phenomena cannot be induced by the reinjection of the specific protein — it is utilized to better advantage than at the first introduction.

Before the hypersensitiveness manifests itself, then, the organism has apparently been rendered capable by the first injection of providing the proteolytic agent essential for the catabolism of the foreign protein either more speedily or in more potent form. Accordingly the destruction of a second dose of the subcutaneously administered protein used for sensitizing the animal is now more promptly exhibited. If, however, a liberal second injection of the foreign protein is administered later during the actual anaphylactic stage, protein metabolism is markedly depressed. There is no special reason for assuming that the specifically formed proteolytic ferment is missing or less effective at this stage; for it is equally plausible that the inhibition concerns the intracellular mechanism by which the primary proteolytic cleavage products are further and finally utilized.

These contrasted observations on the speedy metabolism of parenterally introduced foreign protein in sensitized animals during the preanaphylactic stage and the depressed catabolism at the period of characteristic hypersensitiveness in a comparable individual in no wise disprove the elaboration of suitable special enzymes in either case to take care of the strange protein. Instead of assuming, however, as is currently done, that the proteolytic products formed after a definite latent period by this parenteral digestion are highly toxic, it is quite as illuminating to adopt Heilner's view. From this point of view it is not the character of the digestion products, but rather their failure to be further transformed, that leads to the phenomena of anaphylaxis in these cases. This would, indeed, not be the first instance in which the pathologic feature of a nutritive process lies in the inability of the organism to transform completely compounds that are metabolized under usual circumstances with the greatest of ease. The study of the interesting phenomena of anaphylaxis is advancing to a stage where the chemical factors involved must be more critically dealt with, and there is promise of interesting developments in the near future.

1. Friedberger, E.: Ztschr. f. Immunitätsforsch. u. exper. Therap., ii, iii, iv.
2. Heilner, E.: Ueber die Wirkung artfremden Blutserums im Tierkörper nach Zufuhr per os u. subkutan, Ztschr. f. Biol., 1907, l, 26; 1912, lviii, 332.
3. Abderhaben, E., and Pincussohn, L.: Ueber den Gehalt des Hundeblutserums an peptolytischen Fermenten unter verschiedenen Bedingungen, Ztschr. f. physiol. Chem., 1909, lxi, 426.

SEWAGE-DISPOSAL IN THE UNITED STATES

A wrong method of sewage-disposal is so often followed by unfortunate consequences that public attention is more readily directed to sanitary misdemeanors in this particular than in some other municipal responsibilities. The creation of offensive odors in the vicinity of

dwellings and the pollution of public water-supplies alike are justly visited by severe condemnation. It is a commonplace that in many quarters reform is urgently needed.

Outside of professional students of the sewage problem, however, few persons yet realize the great strides that have been made in this country in the past few years in dealing with the whole question of sewage-disposal. Not only have American sanitary engineers taken a prominent part in establishing the physical and biologic principles that must underlie all suitable systems of sewage-disposal, but in many instances also local authorities have been quick to apply the most recent information and the most modern methods to the solution of their own local problems. A vast amount of carefully conceived and well-executed experimental work has been carried out by American states and cities, with the result that each individual sewage problem can now be approached with a rather full knowledge of possibilities and a very good prospect of definite success. In a word, while the "best method" of sewage-disposal available in any given case depends on the local conditions, the skilled expert is now more likely than at any previous period to reach a generally satisfactory conclusion. We are now in a transition period. Sewage-farming and treatment by chemical precipitation have had their day and are in little favor in professional quarters. Even disposal by simple dilution, useful as it may be under certain conditions, has its distinct limitations and needs a long look ahead before it is adopted as a deliberate policy by a growing community.

Any one interested in the present status of sewage-disposal in the United States will find in a recent book by Fuller[1] what is probably the most comprehensive critical survey of existing conditions that has yet appeared. The author, who has himself been actively engaged in practical sanitary engineering for over twenty years, has drawn largely on the wealth of his professional experience in preparing a treatise that is at once clear, authoritative and readable. American sewage problems, which differ in many respects from European problems, are dealt with broadly and with first-hand knowledge of conditions. Methods such as chemical precipitation, intermittent sand-filters, contact beds, sprinkling filters, settling tanks, septicization of sludge, hypochlorite treatment for sterilization, and fine screening are discussed in all their essential details. Health officers and physicians wishing to obtain information about the methods of sewage-disposal projected or in use in Worcester, Providence, Columbus, Baltimore and many other American cities will be able to obtain from Fuller's book the most recent data together with a critical judgment by a distinguished expert.

One point of special interest is briefly touched on in the preface to Fuller's book. "At a time when medical authorities have a tendency to favor complete sewage purification regardless of the need or cost of such a project, it is hoped that the results of practical accomplishments as described in this book may be of aid." It is a fact that opinions are frequently at variance as to the degree of purification necessary or advisable under particular circumstances and that many sanitary engineers, like Fuller, feel that the two sole objects of sewage-treatment, avoidance of a nuisance and avoidance of danger to public health, are not always kept sufficiently in the foreground. Whether the illustrations and arguments of this author in support of his position are convincing or not, they are worth careful consideration as representing the standards of an authority of the widest experience.

No one can read a book like the one mentioned without a feeling that in spite of many of the surface indications of American life just now, there is a strong undercurrent of soberness and efficiency. The large amount of careful planning and of laborious, honest experimentation under municipal auspices and by municipal employees which is made evident in the work cited is not a thing to be taken for granted or to be ignored in passing judgment on democracy. The achievements of American experimenters and constructors in the field of sewage-disposal bear comparison very well with those reached anywhere. No amount of tumult and shouting should blind us to the fact that urgent municipal problems are being dealt with to-day more honestly and effectively than ever before.

1. Fuller, George W: Sewage-Disposal, McGraw-Hill Book Company, New York, 1912. Price $6.

WHY DOES THE TUBERCULIN REACTION DISAPPEAR IN ACUTE INFECTIOUS DISEASES?

There are various conditions under which the cutaneous tuberculin reaction may disappear for a longer or shorter time, while the tuberculous process in the body, on the presence of which it depends, continues unchanged or even progresses. Von Pirquet, who devised the cutaneous test with which most of the observations have been and are being made, observed that the reaction would disappear in conditions of marked cachexia and also in miliary tuberculosis. Then Preisich noted its disappearance in tuberculous children during an attack of measles, and it has now become established by von Pirquet and others that the cutaneous tuberculin reaction fails to develop during the eruptive period of measles in tuberculous persons. As the eruption fades away the reaction again gradually establishes itself. At first this peculiar suppression of the power to react to the inoculation of tuberculin was regarded as quite characteristic of measles, but it has been found that the same change occurs also in other infectious diseases although not nearly so constantly. The disappearance of the reaction has been noted in diphtheria, scarlet fever, typhoid fever, lobar pneumonia, erysipelas, etc. Moltschanoff[1] found the reaction to disappear in

1. Moltschanoff: Jahrb. f. Kinderh., 1912, lxxv, 435.

100 per cent. of the cases of measles with tuberculosis, in 85 per cent. of the cases of scarlet fever in tuberculous individuals and in 12.5 per cent. of the cases of diphtheria in the tuberculous which he studied. In 50 per cent. of the diphtheria cases with tuberculosis there was a distinct depression in the intensity of the reaction. He also observed that the reaction was less marked than ordinarily in serum disease, especially in cases in which the skin manifestations were pronounced.

How are we to explain this failure to react to tuberculin under the conditions? Several suggestions have been made. Thus von Pirquet thought it might be due to a failure of the body when attacked by a new infection, like measles for instance, to produce in sufficient quantity the specific antibodies necessary to cause the reaction, another indication of this failure being the often rapid progress of the tuberculous process after an attack of measles. In the other acute infectious diseases just mentioned there does not seem to be so much tendency to the development of active tuberculosis as in the case of measles, but then, as we have seen, the loss of reactivity to tuberculin is not so pronounced. Others bring the disappearance of the reaction into relation with the leukopenia in measles. In scarlet fever, however, and also in diphtheria the reaction may be absent even when there is no marked leukocytosis. Still others hold that the failure of the reaction is dependent on changes in the skin itself, which on that account does not react in the usual way. This explanation might seem applicable to measles and scarlet fever and possibly also to serum disease, in which there are marked alterations in the skin. In diphtheria, pneumonia and typhoid fever, however, there are no such manifest changes in the skin, and yet the reaction may disappear for a time.

Finally, it may be pointed out that in all these diseases the body passes into an allergic or anaphylactic state due to the introduction of foreign proteins of various kinds, which are being split up by specific antibodies, and that many of the symptoms no doubt are caused by poisonous substances thus produced. We know from experiments on guinea-pigs and other animals that, as recovery from acute anaphylactic intoxication takes place, a condition of insusceptibility to further intoxication of this kind develops. The exact nature of this refractory state, also known as anti-anaphylaxis, is not understood, but it is a well-recognized phenomenon. May it not be that the failure in acute infectious diseases and in serum disease of the tuberculin reaction, which we regard as of allergic nature, is the result of a temporary refractory or anti-anaphylactic condition? Further investigations no doubt will clear up the question before us. In the meantime, it would be of interest to determine whether other specific allergic reactions also fail to manifest themselves in suitable individuals during the course of acute infections. As the refractory state referred to is non-specific and general, we would expect that other reactions would fail also if the explanation of the failure of the tuberculin reaction that has just been suggested holds good. In this connection it is of interest to note that Hamburger has found that in measles there may be a complete insusceptibility to vaccination, the cutaneous phenomena of which are regarded as of a strictly allergic nature.

THE PLAGUE SITUATION

Since the present pandemic began in 1894, plague has circled the globe. Escaping from south-central China, where it has probably been endemic for centuries, it first invaded the Chinese ports of Canton, Hongkong, Amoy and Macao. It then extended to India, Japan and Asiatic Turkey; then to Russia, Austria and Portugal in Europe, and to a number of localities in Africa; then in 1899 to Hawaii, New Caledonia and to various countries in South America; in 1900 to Australia, New Zealand, the Philippines, Germany, Great Britain and California. By 1901 plague was known to have invaded the countries that had the most extensive maritime commerce. Since then the disease has continued to spread, involving new localities one after another. In the western hemisphere by 1907 plague had been reported in Argentina, Brazil, Chile, Mexico, Panama, Paraguay, Peru, Trinidad and Uruguay and in the United States in the states of California and Washington. The cases recently reported in Porto Rico and Cuba are the first known to have occurred in either place during the present pandemic. The occurrence of these cases means that the disease has come one step nearer the Atlantic and Gulf coasts.

In some of the localities invaded by plague during the last eighteen years the disease has persisted to the present time; in others it seems to have disappeared, or at least not to have affected man for some time; in others outbreaks have recurred at intervals. Because of the number of species of rodents susceptible to plague and the persistence of the infection among them when a focus has once been established, it may properly be suspected that many of the invaded localities in which human cases have not been recognized for some time still harbor the infection among rodents. Plague is primarily a disease of rodents and may exist among them for a long time without affecting man. This is well illustrated by the conditions in California, where the disease has been present among the ground-squirrels in the rural districts, and yet in the last four years only eleven known cases have occurred in man.

In Havana but three cases have been reported to the present time. In Porto Rico the presence of plague was first recognized June 14 in a patient who had become ill June 12. There were two earlier cases which were probably plague and were admitted to hospital about the first of June with diagnoses of "non-venereal bubo." Up to July 23 there had been in all forty-three human cases in Porto Rico, of which twenty-nine occurred in San Juan; nine in Santurce, a suburb of San Juan; two in

Carolina, a town thirteen miles distant; one at Loiza, a town three miles from Carolina; one at Dorado, a town thirteen miles from San Juan; and one on a vessel at Arroya, on the southern shore of the island. The work of eradicating the disease is being carried on by the Public Health and Marine-Hospital Service in cooperation with the Department of Sanitation of Porto Rico, and by the local and United States authorities in Havana.

As to when or how plague reached Porto Rico, it is impossible to say, for ships carry rats and rats carry plague. If the infection is recent it may be presumed that the reason the disease did not reach there before is that the maritime quarantine maintained by the Public Health and Marine-Hospital Service has served to keep it out. But maritime quarantine is not, and cannot be, a wall impervious to disease; it is but a net or sieve which removes from commerce most of the dangerous elements of disease and its carriers, and greatly lessens the chances of infection being imported. As an adjunct to maritime quarantine, special attention should be given to the sanitation of ports entered by foreign shipping, and in view of the present plague pandemic, consideration should be given particularly to the water-fronts and the erection of rat-proof wharves and warehouses.

It is impossible to know just how widely prevalent plague infection is throughout the world, or what foreign ports harbor the disease in rodents. For that matter it is not impossible that some of our larger ports may be harboring the disease all unknown, in rats. Indeed, a plague-infected rat was reported to have been found in New Orleans July 27, after several hundred rats had been examined with negative results. It will thus be seen that the danger of its gaining a foothold in the eastern and southern portions of the United States is imminent, and it is only by increased vigilance and persistence in the efforts of the sanitary authorities of the coast ports, already so well begun, that the infection may be prevented from gaining entrance, or at least attaining the proportions of an epidemic of any considerable size. A conference of state and port health officers of the gulf coast states was held at New Orleans, July 29, at which the situation was gone over and a comprehensive line of preventive procedure adopted.[1] The experience on the Pacific coast has demonstrated the exact measures necessary to combat or prevent it.

LEAD-POISONING IN BATTLE-SHIPS

Perhaps no other feature of the science of preventing disease merits more completely the present interest and attention it arouses than does the prevention of diseases and accidents due to modern industrial and social conditions. It is strange that a great battle-ship should deal death and injury not alone to the enemy in time of war, but to friends and citizens in time of peace as well. The lead which kills in time of peace is not in the form of bullets but of paint.

In an article in the *Survey* based on a report to the New York state factory commission, E. E. Pratt[1] describes an aggravated case of lead-poisoning with paralysis and loss of earning power in an employee of the Brooklyn navy-yard. Since Sept. 1, 1911, New York has had a law requiring physicians to report industrial diseases, such as caisson disease, anthrax and poisoning by lead, mercury and arsenic. Under this law a case of lead-poisoning was reported with the bare statement that the man was an employee of the Brooklyn navy-yard. Investigation showed that this man, along with a number of others, was employed as a laborer in "scaling" lead paint in the double bottoms of battle-ships. Twenty men were found at the navy-yard who had suffered from lead-poisoning caused by work in double bottoms. Almost half the men employed on this work had been affected at one time or another by the lead; many of them had lost much time from their work on this account, and two had died.

A battle-ship has a space from 2½ to 3½ feet in depth between the inner and outer shells of the bottom. This space is cut up into small compartments usually not more than 4 or 5 feet square. The paint lining these steel compartments is sometimes a quarter of an inch in thickness, and consists of almost pure red oxid of lead. The "scaler" crouches on his knees, and by the aid of an electric light on a cord, operates a compressed air chisel which strips off the paint. Often several men are at work in a single compartment. The dust sometimes becomes so thick that the light can scarcely be seen 2 feet away. In summer fresh air is forced into the compartments, but, while this is refreshing, it makes the dust worse, and lead-poisoning ensues.

The inspection also disclosed that the men had not been instructed in the precautions necessary to prevent lead-poisoning. The workmen eat their lunch without changing their clothes or washing. Their hands are red with oxid of lead. In fact, no conveniences of any kind are furnished the men for cleanliness. After this inspection a conference was held at the navy-yard and the facts were brought to the attention of the commandant. Similar conditions undoubtedly prevail in all the government yards, and men are constantly employed at this dangerous work aboard ship. The situation is the more unfortunate in the government yards on account of the fact that chronic lead-poisoning is not considered an "injury" due to occupation and the men are not compensated for their loss of time and health on account of this preventable trouble. Congress has finally passed a law which will eliminate the danger of phosphorus-poisoning in match-factories and it would seem that perfectly well-known measures should be adopted to eliminate this easily preventable condition as well as other occupational diseases among government employees.

1. See General News, this issue.

1 Pratt, E. E.: Not Bullets But Paint, Survey, July 6, 1912.

Certain recommendations are made by Pratt which if honestly carried out would prevent serious sequelæ from lead-poisoning in this work or in any other in which lead is used:

1. Monthly examination of workmen and removal of any showing signs of poisoning.
2. An effective and localized method of dust removal.
3. Provision of washing facilities, including *hot* water, soap and shower baths and the enforcement of their use.
4. Personal instruction and posted notices regarding the dangers and how to avoid them.
5. Provision of respirators and enforcement of their use.
6. Shifting of men from this to less dangerous work.

CONSCIENCE AND CLEAN MILK

In Chicago recently the city council failed to pass an ordinance providing for a clean and safe milk-supply, which had been prepared by the health committee of the council and the city health department after much study and consultation with all parties interested. The failure of this ordinance to pass, together with the enactment of a law by the Illinois legislature preventing cities from demanding a tuberculin test of cows furnishing the city milk-supply leaves the city almost helpless as regards the safety of the milk for its babies. The chief source of opposition seems to be the small dealer, who evidently opposes it because he does not wish to curtail his profits by the added expense necessary to cleanliness.

In Erie, Pa., after repeated failures of the city health department to induce a large number of milk-dealers to comply with the milk regulations to the extent of straining the cow-manure and other dirt out of their milk, the authorities were compelled to seize much of the supply and pour it into the gutter. In San Diego, on account of a weak and defective ordinance which gives the courts room for a technical interpretation, making convictions for violations almost impossible, the health board has urged that the ordinance be amended so as to make violations punishable by imprisonment. The present San Diego ordinance provides for a small fine, and only on a fourth violation is the milkman's license revoked. These are only a few instances in which it is found that human considerations involving the health and lives of helpless infants make no appeal to men financially interested.

If you said to one of these milk-dealers or opposing councilmen, "You have killed a baby," he would probably call you a liar, prosecute you for slander, or fight; the trouble is merely that he can see no iniquity (since it is against his interest to see it) in jeopardizing the lives of human innocents by furnishing dirty—which may mean poisonous—milk. No consideration must be allowed to weigh against friends and their interests, says politics. No considerations must be allowed to weigh against business, says the milkman. And so the small dealer, the ward politician and the small-souled, self-serving councilman, all with minute or vanishing consciences, fail to pass, or deliberately and repeatedly violate, ordinances which under the plainest dictates of ethics, decency or humanity should never encounter the least opposition. What is really needed is a development of conscience and an extension of human feeling. Then an unseemly fight would not be required to insure a clean and healthful milk-supply. As is usual, the physicians, who profit most, perhaps, from the grievous results of an unclean milk-supply, are found on the right side of this question and of the Chicago council the only physician member of it, Dr. W. O. Nance, is fighting tooth and nail for clean milk.

Current Comment

HOT-AIR TREATMENT FOR DIPHTHERIA

Recent investigations by Rendu[1] indicate that inhalation of hot air may become a valuable ally in the treatment of diphtheria. The bacillus of diphtheria is more susceptible to heat than are most pathogenic organisms. According to Rendu's results exposure to a temperature of 176 F. (80 C.) for one minute, of 140 F. (60 C.) for ten minutes, or of 122 F. (50 C.) for fifteen minutes is sufficient to kill the diphtheria organisms. This, together with the fact that the bacilli grow in rather an exposed location on the surface of the membranes of the mouth and pharynx, led to the experiments in the use of heated air. Rendu found by experiments on himself that a temperature of 212 F. (100 C.) for a period of two minutes could be supported without inconvenience, and that a temperature of 140 F. could easily be endured for more than half an hour. Following this experiment diphtheria patients were exposed to a temperature of 176 F. for five minutes with satisfactory results, and Rendu became convinced that this measure markedly inhibits the growth of the bacteria and shortens the course of the disease. He does not suggest the hot-air treatment as a substitute for antitoxin, but as a supplementary measure. His suggestion seems rational, for if both heat and antitoxin inhibit the development of diphtheria bacilli a judicious combination of the two may be expected to accomplish more than either one singly.

A RADICAL TREATMENT OF TETANUS

Tetanus is caused by toxin absorbed from the place of lodgment of the bacilli, which almost always is a wound of some external part of the body. The indications are to remove as thoroughly as possible the sources of the toxin and to neutralize that which has gained entrance into the body. The best and probably the only means at hand for the latter purpose is tetanus antitoxin, but it is unfortunate indeed that the antitoxin which is of great value as a preventive should be of limited effect only when it is given after the active symptoms of tetanus have developed. How to combat

1. Rendu: Bibliothèque univ. et rev. suisse, May, 1912.

tetanus with success when the case comes under treatment after symptoms have developed is the question. A case described by Kras[1] merits notice as an example of radical efforts in a case of severe tetanus. A man 25 years old presented typical symptoms — opisthotonos, trismus, high fever, etc.— the infection being in a cut made on the back of the hand by a piece of tin. The wound was excised and cauterized, and swollen lymph-nodes at the elbow were removed; then 500 c.c. of blood were removed and the same quantity of salt solution infused. Now lumbar puncture was made, the cerebrospinal fluid allowed to escape completely, drop by drop, the canal washed out with salt solution containing 0.3 per cent. sugar, and finally some of this fluid was left in the canal. Severe dyspnea and convulsions developed at the end of this procedure but in a few minutes the patient fell into sleep lasting six hours. Pronounced symptoms having developed anew, 300 c.c. of blood were withdrawn on the next day, and lumbar puncture again made as before. On the third day there was marked improvement and 200 c.c. of blood were removed. On the fourth day the spinal canal was washed out once more. On the sixth day traces of trismus returned and bleeding and spinal puncture were repeated. There were no further symptoms and the patient recovered. In view of the bad outlook in cases like this, the measures used by Kras for the purpose of removing toxin from the blood and cerebrospinal fluid may merit further trial even though they are not without danger. They seem rational and were seemingly successful in this case. In addition antitoxin in large quantities should be injected either into the circulation or intramuscularly in order to insure prompt absorption and quick distribution. By these means an occasional life may be saved. In hydrophobia also the trial of similar radical methods merits consideration.

THE CAUSE OF THE ONSET OF LABOR

Stimulated by an editorial in these columns[2] commenting on the work of Heide in causing the onset of labor by injection of fetal serum, Rongy[3] has repeated the work of Heide and in a report of nineteen cases adds to the interest and information in regard to this subject. In six patients injected with small quantities of fetal serum, prepared after the method suggested by Heide, ten to eighteen days before term, expulsion of the child followed promptly. In all cases, uterine contractions were observed by Rongy soon after the injection of the serum, although no pains were felt by the patient. It was determined that pains were felt only when there was direct stimulation of the cervix by the pressure of the bag of waters and the oncoming head. In two cases it was found that whereas injection of a large dose produced reaction promptly, injection of 5 to 7 c.c. followed by a large injection of 20-25 c.c four or five hours later gave a more severe reaction. In two cases of inertia uteri, the serum was very effectual and injection was followed by active labor pains within a short time after injection. Finally in a case of threatened eclampsia, injection of serum induced labor and all urinary symptoms cleared up immediately after the first injection. In seven cases negative results were obtained, in four of these there were precordial pain and oppression, in practically all some nausea and vomiting, and in two slight pains which may or may not have been induced by the serum. These results appear distinctly encouraging. The work of Heide has been corroborated and we have reason to believe that fetal serum does contain substances that may cause the onset of labor. An interesting field has been opened for further investigation. The exact nature of these substances, their mode of action and their rôle in causing the natural onset of labor are some of the problems to be solved.

1. Kras: Wien. klin. Wchnschr., 1912, xxv, 88.
2. THE JOURNAL A. M. A., 1911, lvii, 1290.
3. Rongy: Am. Jour. Obst., 1912, lxvi, 1.

QUARANTINING AGAINST THE HOOKWORM

A new and rather interesting phase of the hookworm problem has come to the front in San Francisco. After the discovery of the wide prevalence of hookworm in the South, California, too, was found badly afflicted with the pernicious parasite. It was known to exist in the mines of that state, but recently has been found prevalent among Porto Rican and oriental laborers who are mostly engaged in agricultural pursuits. Probably one-third to, perhaps, one-half of the immigrants coming from the Orient are infected with hookworm; an investigation during which 2,255 were examined revealed that 1,077 harbored the intestinal parasite. In San Francisco it has recently been discovered that a number of laborers, chiefly from the West Indies, engaged in market-gardening on a tract of land within the city limits, are afflicted with hookworm and, on account of the danger of transmitting the parasite by uncooked vegetables, the laborers have been quarantined and placed under treatment, and the vegetables from these gardens will not be allowed to be sold in the markets until all evidence and danger of hookworm infection are eliminated. The usual route of the infection is through the skin of the feet, but it is believed that uncooked vegetables carrying the hookworm eggs or larvæ might also be a source of infection. This phase of the question and the method of solving it are rather novel. Doubtless similar conditions obtain elsewhere, and the San Francisco plan will afford a precedent in meeting them.

Medical News

ILLINOIS

Dunning Needs New Dormitoty.—The State Board of Administration, on July 25, directed that no more patients be sent to the Chicago State Hospital, Dunning, until the new dormitory is completed. The present number of inmates at the hospital exceeds 3,200.

County Society Incorporates.—The Adams County Branch of the Illinois State Medical Association, Quincy, has been incorporated by Drs. L. H. A. Nickerson, J. H. Rice, O. F. Sullivan, J. E. Miller and C. A. Webb, the objects stated being "to promote public health and for social and scientific purposes."

Hospital News.—It is proposed to convert the old Clifton House, Freeport, into a municipal hospital, one portion of the building being used as a private sanatorium.——An emergency hospital has been completed by Deere & Company, Moline, at a cost of more than $1,000. First aid quarters have also been installed in the plants of the Moline Wagon Company,

the Deere and Mansur Company, the Union Malleable Iron Company and the Deere Harvester Factory.

Personal.—Dr. E. J. Doering, Chicago, has gone abroad.——Dr. Albert J. Ochsner returned from Europe, July 21.——Dr. Clara E. Hayes has been appointed a member of the medical staff of the Bartonville State Hospital.——Dr. L. A. Burhans, Peoria, was injured in an automobile accident, July 20.——Dr. J. G. McKinney, Barry, fractured his arm while cranking his automobile, July 15.——Dr. W. S. Blue, Ottawa, is a patient in Ryburn Memorial Hospital, Ottawa, suffering from injuries received in a runaway accident, July 4.

Chicago

Meeting on Milk Question.—A meeting was called for July 31 at the Council chamber by Dr. Willis O. Nance, chairman of the Committee of Health of the City Council, to consider the question of pure milk supply and to recommend a means of bettering present conditions. Among the speakers were Drs. Frank Billings, Isaac Abt and Paul G. Heinemann, Miss Jane Addams and Miss Julia Lathrop.

INDIANA

Hospital Nearly Ready.—St. Vincent's Hospital, Indianapolis, is nearly ready for occupancy. The building has a frontage of 300 feet, is 245 feet deep, and is fireproof. It will contain 152 rooms for patients and will have cost, when finished, $800,000.

Personal.—Dr. Carl C. Eberly has been appointed city sanitarian and secretary of the Board of Health of Indianapolis, vice Dr. Charles S. Woods, resigned.——Dr. George D. Kahlo, house physician at French Lick Springs Hospital, has resigned and will reengage in the practice of his profession in Indianapolis.——Dr. John J. Kyle, clinical professor in otology, rhinology and laryngology in the Indianapolis University of Medicine has resigned and has moved to Los Angeles.——Dr. D. B. Domb, Indianapolis, has sailed for Europe.——Dr. A. F. Gugsell, Jasper, has been elected vice-president of the recently organized Dubois County Antituberculosis Society and Drs. P. L. Coble, Celestine, O. A. Bigham, St. Anthony, and L. C. Lukemeyer, Patoka, have been elected township vice-presidents.

IOWA

New Officers.—Iowa Union Medical Society, semi-annual meeting at Cedar Rapids, July 16: president, Dr. J. B. Kessler, Iowa City; secretary, Dr. F. G. Murray, Cedar Rapids.

State Board Elections.—At the annual meeting of the State Board of Health and State Board of Medical Examiners, held in Des Moines, Dr. Albert De Bey, Orange City, was elected president of the State Board of Health; Dr. T. U. McManus, Waterloo, president of the State Board of Medical Examiners, and Dr. G. H. Sumner, Des Moines, was reelected secretary of both boards.

Personal.—Dr. F. T. Stevens has resigned as assistant superintendent of the Mount Pleasant State Hospital.——Dr. A. G. Field, Des Moines, is reported to be seriously ill, following a severe hemorrhage of the stomach.——Dr. George W. Beach, assistant superintendent of the Iowa Sanatorium has been appointed superintendent of the Minnesota State Sanatorium for Consumptives, Walker.——Dr. A. T. Miller, Clinton, sailed for Europe, July 2.

New Hospital Dedicated.—The new Washington County Hospital, located in William Perry Wells Park, Washington, was formally dedicated, July 15. In the morning the building was opened for the inspection of the medical fraternity exclusively, and during the afternoon and evening for the public. The Washington County Medical Society held dedicatory exercises in the morning and in the afternoon a public program was given. This hospital was established under the provisions of the act passed by the legislature in 1910. The building is of reenforced concrete construction, is fireproof, three stories and a basement in height and is situated on a tract of land more than eleven acres in area, within half a mile of the business center. The rooms in the hospital have been fitted up by charitable societies, lodges, clubs and individuals. It is the first county hospital to be established in Iowa, and is not only attractive and comfortable, but also is as nearly sanitary and hygienic as it is possible to make it.

KENTUCKY

Addition to Paducah Sanatorium.—An additional ward has been donated to the Jackson Hill Sanatorium, Paducah, which will double the accommodation of the institution.

Tuberculosis Commission Organized.—The Tuberculosis Commission was organized by electing the governor as chairman and Dr. Everett Morris, Sulphur, as secretary. Drs. H. S. Keller, Louisville; U. V. Williams, Frankfort, and Bernard Flexner, Louisville, were appointed a committee to draw up laws for the government of the commission.

The Public Drinking Cup.—The attorney general, in construing the public drinking cup law, has decided that the state hospitals for the insane and the public schools do not come within its provisions. The superintendent of public instruction has issued an order affecting the rural schools in which he states that the full provisions of the act will be made to apply to all rural schools despite the attorney general's ruling.

Personal.—Dr. Vernon Robins, city chemist of Louisville, is reported to be seriously ill.——Dr. Arthur T. McCormack, Bowling Green, health officer of Warren County, has resigned and has been succeeded by Dr. J. W. Lewis, Oakland.——Dr. J. M. Morris, Louisville, is ill at his home with septicemia.——Dr. Archibald Dixon has resigned from the board of health of Henderson and has been succeeded by Dr. W. A. Quinn.——Dr. J. M. O'Maley has succeeded J. T. Wallingford as health officer of Covington.——Drs. S. P. Garrison, Bellevue, and Claude Youtsey, Newport, have been appointed local surgeons of the Chesapeake and Ohio Railway.——Dr. C. A. Fish, Frankfort, has been appointed a member of the State Board of Health, to succeed Dr. H. S. Keller, Frankfort, resigned, to accept appointment as a member of the State Tuberculosis Commission.

MARYLAND

Personal.—Dr. and Mrs. E. L. Jones, Cumberland, sail on a trip to Panama, August 3.——Dr. E. N. Brush, superintendent of the Shepherd and Enoch Pratt Hospital, Towson, has gone to Europe for the summer.——Dr. Thomas B. Owings, Ellicott City, is reported ill with arteriosclerosis.——Dr. Charles A. Hollingsworth has been appointed postmaster at Bel Air.——The managers of the State Insane Hospital, Sykesville, have decided to erect a new house for the superintendent, Dr. J. Clement Clark, to replace the one recently destroyed by fire.

Baltimore

Personal.—Dr. Ernest Zueblin, formerly of Pittsburgh, has been elected professor of medicine in the University of Maryland to succeed Dr. Charles M. Mitchell who has been transferred to the chair of pediatrics.——Dr. James Bosley, health commissioner, has sailed for Bermuda.——Dr. John Howland, professor of pediatrics in Washington University, St. Louis, has been appointed director of the Harriett Lane Home for Invalid Children, to be opened October 1, professor of pediatrics in Johns Hopkins University and physician in charge of the pediatric department of Johns Hopkins Hospital.

Cancer Hospital Staff Announced.—The president of the board of directors of the Skin and Cancer Hospital of Maryland has announced the following appointments: surgeon-in-chief, Dr. G. Hauer Everhart; surgeons, Drs. Henry H. Stansbury; Robert Bay, George E. Houck, Waitman T. Willey, E. H. Kloman and H. C. Davis; medicine, Drs. Lewis R. Palmer, H. G. Jones, M. W. Shorb and M. Shamer; electro-therapeutist, Dr. G. G. E. Corss; pathologist, Dr. Barrett C. Catlan; chemist, J. M. Codd; superintendent, Dr. Guy S. Peppers; consultants, Drs. Charles Leslie Rumsey, Eldridge C. Price, M. Bowman Hood, R. W. Miffin, Dulaney Thomas, Wilbur Skillman, John A. Evans, Ward Wisner, John M. Hood, George William De Hoff, William Pannebaker, P. B. Towler, Clarence K. Jump, H. C. Dulaney, Shepherd Drain, E. O. Murray, George L. Ewalt and L. Blessing.

MASSACHUSETTS

Floating Hospital in Service.—The opening cruise of the Boston Floating Hospital was made June 29. Dr. Henry C. Marble is resident physician. About fifty babies and their mothers were taken down the harbor on the first trip of the boat.

Hospital Opened.—Hampden Hospital, Springfield, was formally opened recently. The institution occupies a remodeled residence and contains forty-two rooms. Dr. Walter R. Weiser is chief of staff of the hospital and treasurer of the organization.

Health Officers Hold Meeting.—The Massachusetts Association of Boards of Health held its quarterly meeting at Gallup's Island, Boston Harbor, July 25. The address of the meeting was delivered by Dr. Mark W. Richardson, Boston, secretary of the State Board of Health, who discussed important bills relative to the public health considered by the legislature of 1912.

Personal.—Dr. and Mrs. Albert Ehrenfried, Boston, have sailed for Europe.——Dr. James G. Mumford, Boston, has been

elected superintendent of the Clifton Springs (N. Y.) Sanitarium.——Dr. J. E. Frothingham, Boston, sustained slight injuries in the wreck on the Delaware, Lackawanna and Western Railway near Corning, N. Y., in which forty-seven persons were killed.——Dr. William J. Brickley has been appointed surgeon in chief of the Relief Hospital, Haymarket Square, Boston, vice Dr. Loring D. Packard.——Dr. and Mrs. H. A. Downey, Mittineague, have sailed for Europe.——Dr. Samuel A. Green, Boston, is reported to be improving at a private hospital in Groton.

NEVADA

Personal.—Dr. Martin A. Robison, Reno, who was operated on, July 17, in New York City for appendicitis, has made a good recovery, and passed through Chicago recently on his return home.——Dr. Henry Ostroff, Reno, has resumed practice after spending several months in study in Chicago, Rochester (Minn.), and the east.

NEW YORK

Leper Found in Buffalo.—A Russian immigrant who was under observation in New York and thence was traced to Cleveland, Bay City, Mich., and Ann Arbor, was found in Buffalo, July 21 and has been isolated. Bacteriologic tests are said to have confirmed the diagnosis of leprosy.

Labor Unions to Aid Health Work.—The State Department of Health is enlisting the cooperation of labor unions in its efforts to diminish the prevalence and mortality of disease. Dr. Eugene H. Porter, New York City, State Health Commissioner, has appointed Michael J. O'Brien of Rochester as a special representative to visit labor organizations throughout the state to explain the object of the state authorities and also to arrange for meetings to be addressed by special lecturers.

Personal.—Dr. James P. Barr, Buffalo, sustained a broken rib and severe contusions in a collision between his automobile and a Broadway car, July 20.——Dr. F. F. Hoyer, one of the oldest practitioners of the state, is reported to be critically ill at Tonawanda.——Dr. A. E. Collins, Buffalo, was seriously injured when his automobile overturned near the Grand River Ferry, July 11.——Dr. James H. Donnelly has succeeded Dr. J. S. Otto as head of the Tuberculosis Bureau of the Buffalo Health Department.

Campaign of Education.—The State Health Commission has appointed the following women physicians of the state as special lecturers to carry on a state-wide campaign of education among women and girls on the subjects of hygiene and the prevention of disease. The lecturers' names are Drs. Adelaide Dutcher, Syracuse; Rosalie S. Morton, New York City; E. Hamilton Muncie, Brooklyn; Lucia E. Heaton, Canton; O. M. Grover, Dunkirk; Mary H. Potts, Elmira; Agnes E. Page, Albany; Cora B. Lattin, Ithaca; M. May Allen, Rochester; Ina V. Burt, Phelps; Mary G. Day, Kingston, and Angeline Martine, Utica.

New York City

Dispensary Opened.—The Herriman Dispensary of the Brooklyn Hospital was opened, July 17. The dispensary is to be open daily. It is a two and one-half story brick and marble structure and was given by Mr. William H. Herriman in memory of his wife. Mr. Herriman donated $100,000 for this work, $25,000 of which is to be used as an endowment fund.

Epidemic of Infantile Paralysis Feared.—The discovery of nine cases of infantile paralysis in a small area between Forty-Eighth and Forty-Ninth Streets in the neighborhood of First Avenue has awakened the Health Department to the necessity of fighting against a possible epidemic. The authorities have ordered the isolation of patients and physicians are instructed to be on the lookout for the early symptoms of the disease. Every suspicious case will be taken to the hospital at once.

Seagoers.—Dr. Eugene Fuller, Dr. and Mrs. J. E. L. Davis, Dr. and Mrs. H. L. Purdy, Dr. William C. Braislin, Dr. George McNaughton, Dr. Gordon R. Hall, Dr. John A. McCorkle, Brooklyn, Dr. and Mrs. H. G. Keith, Dr. George A. Taylor, Dr. G. L. Gibson, Dr. and Mrs. John A. Fordyce, Dr. and Mrs. Ludwig Weiss, Dr. and Mrs. E. L. Meierhof, Dr. and Mrs. John Herbert Claiborne and Dr. Francis P. Kinnicutt have sailed for Europe.——Dr. and Mrs. C. H. Peck have returned from abroad.

Teach Children to Avoid Accidents.—The American Museum of Safety in West Thirty-Ninth Street is undertaking to teach children to avoid accidents. The children are invited to the museum and are taught, by means of toy trolley cars and dolls, the dangers of the street and how to avoid them. They are taught how to get on and off cars and are presented with a text book containing a number of cautions. Those interested in the work are endeavoring to have the city railways carry the children to and from the museum free of charge.

Work of Sanitarium for Hebrew Children.—The annual report of the Sanitarium for Hebrew Children at Rockaway Park gives an account of the work that has been done for the past thirty-five years among the poor of the east side of New York. During the past year 20,000 women and children received medical attention and the benefits of the institution. The sanitarium has made it a part of its work to inculcate cleanliness and hygiene, and in this way, to ameliorate conditions in the homes of those coming under its influence.

Homes to Be Provided for Inebriates and the Tuberculous.—At a special meeting of the Board of Estimate an appropriation of $75,000 was approved for the purchase of a farm of 840 acres in Orange County, for the establishment of a sanitarium for inebriates. The board also adopted the report of its special committee accepting the proposition of the Association for Improving the Condition of the Poor to build a hospital for the sea-air treatment of non-pulmonary tuberculosis at a cost of $250,000, on condition that the city give the site at Rockaway, and conduct and maintain the hospital.

Personal.—Dr. William H. Woglom, Brooklyn, was appointed to the post of first assistant in New York at the meeting of the Cancer Research Fund in London. The New York post is maintained under the Crocker Fund for the Investigation of Cancer.——Dr. W. Ostwald, of Leipsic University, has accepted an invitation to address the American Society of Medical Research next fall.——Dr. Louis Livingston Seaman has been appointed one of a committee of three by the City Club to make arrangements for a suitable monument to mark the resting place of Thomas Willett, the first mayor of New York.——Dr. H. M. Cullinan, Brooklyn, is reported to be critically ill with pneumonia, following an attack of septicemia.——Dr. Richard Ellis has been given an annuity of $3,000 a year by the estate of John Hyler.

Hospital and Dispensary Notes.—The New York State Dispensary, which has been twice dispossessed by the state within four years, has purchased a site at 34 and 36 Spring Street, in a densely populated tenement district, which is to be improved with a two-story building, exclusively for dispensary purposes.——The Brooklyn Hospital and Dispensary, a building erected at a cost of $75,000 on Raymond Street near DeKalb, by William H. Merriman in memory of his wife, Elizabeth Wyckoff Merriman, was officially opened July 1. In addition to supplying the structure, Mr. Merriman gave the institution an endowment fund of $25,000.——The president of the Hospital for Deformities and Joint Diseases has announced that $36,500 has already been raised in the new dispensary building.——At a meeting of the trustees of the Home of St. Giles the Cripple, it was unanimously decided to rebuild in Brooklyn, using the present building at Garden City as the annex, or home for convalescents.

Work of the Health Department.—The monthly bulletin of the Department of Health of New York City for June reviews the work of the department for the past two years. This period has witnessed the establishment of two successive low records in the annual death rate of the city, namely, 15.98 per thousand of the population for the year 1910 and 15.13 for 1911. In 1866, the year in which the department was organized, the death rate was 36.31 per thousand. For the first ten years thereafter it averaged 26.61 per thousand. The figures continued to fall until in the decade 1899 to 1908 it reached an average of 18.84 per thousand. A comparison of the present rate with that of the first decennium under the organization shows a decrease of about 40 per cent. The diseases in which decrease is noted are mostly infectious, while the greatest increase has been in pneumonia, and here a large part of the increase is only apparent as deaths formerly ascribed to bronchitis are now designated as due to pneumonia.

OREGON

New Officers.—Eastern Oregon Medical Association, eleventh annual meeting at Ontario: president, Dr. G. A. Pogue, Ontario; treasurer, Dr. Fred Lieuallen, Pilot Rock.——Northern Oregon Medical Association, twenty-first annual meeting in Roseburg: president, Dr. R. W. Stearns; secretary-treasurer, Dr. J. J. Emmens, both of Medford.——Minneapolis University Alumni Association of Portland, in Portland, June 1: president, Dr. J. Elliott King, Portland; secretary-treasurer, Dr. H. R. Dewart.——Portland City and County Medical Society: president, Dr. W. T. Williamson; secretary, Dr. George S. Whiteside.

PENNSYLVANIA

New Officers.—Fifth Censorial District Medical Society at Mount Holly Springs, near Carlisle, July 23: president, Dr. H. A. Spangler, Carlisle; secretary-treasurer, Dr. C. W. Eisenhower, York. The next meeting will be held in Gettysburg. ——Lehigh Valley Medical Association, thirty-second annual meeting, at Delaware Water Gap, July 18: president Dr. G. W. Guthrie, Wilkes-Barre; secretary, Dr. J. W. Luther, Palmerton.

Personal.—Dr. Thomas F. Neil, Sligo, has been appointed a member of the staff of the Watertown (Ill.) State Hospital. ——Dr. John A. Hawkins, Pittsburgh, has brought suit against the Bell Telephone Company for omitting his name from the telephone directory. He asks $25,000 damages.——Dr. Charles F. Palmer, Chambersburg, is in the Chambersburg Hospital with an infected hand.——Dr. James Bauer, Pottsville, has been appointed superintendent of the Schuylkill County Hospital.——Dr. Hyman Wiener, Waynesboro, was operated on for appendicitis, July 17, in the Harrisburg Hospital, in which he is an intern.——Dr. John Alden Lichty, Pittsburgh, has been chosen as a trustee of the Clifton Springs (N. Y.) Sanatorium.

Philadelphia

Steamships Held Up.—The steamship *Merion*, which arrived from Liverpool, July 21, was detained at the federal quarantine station, Reedy Island.——The 485 passengers detained at Lewes on the steamship *Haverford* were released from quarantine and brought to Philadelphia, July 23.——The Hamburg American steamship *Prince Adalbert* from Hamburg, was detained at the Reedy Island Quarantine, July 18, on account of the death at sea of a child from small-pox.

Work on the Piers.—Fifty-seven babies can now be taken care of at the Race Street Pier and Dr. Henry Sykes, the physician in charge and his assistants, Drs. Fish, Parke and Darwarth make daily visits. There is now a corps of ten nurses. At the Chestnut Street Pier, the head of which is Dr. Joseph S. Neff, director of public health and charities, a day nursery for infants is maintained. Dr. S. W. Newmayer is the resident physician, and four nurses give mothers' lessons each day on the feeding of children.

Personal.—Provost Edgar F. Smith, who represented the University of Pennsylvania at the two hundred and fiftieth anniversary of the Medical School of the University of Dublin, Ireland, had conferred on him the degree of doctor of science "for his work in analytical and electro-chemistry, especially with composition of minerals."——Dr. George E. de Schweinitz has returned from Europe.——Drs. W. G. Elmer, E. P. Davis, G. Oram Ring, S. S. Woody, Jay F. Schamberg, Louis J. I. Burns and Alexis D. Smith have sailed for Europe. ——Dr. William E. Hughes sailed for South America, July 21.——Dr. H. Lowenburg has been elected assistant professor of infantile dietetics in the Medico-Chirurgical College of Philadelphia, and also pediatrist to Mount Sinai Hospital, succeeding the late Dr. Edwin Rosenthal.——Dr. Theodore F. Watkins, Germantown, while delirious, leaped from a third-story window of his house, July 10, but fortunately suffered only slight injuries.——Dr. Marion Mackenzie, professor of biology at the American College for Girls, Constantinople, Turkey, has resigned and returned to her home in Philadelphia.

New Milk Rule.—Properly to protect the health of the community and to further the campaign to save babies, the Bureau of Health announced the following rules governing the sale of milk, July 26, to go into effect August 1: "No milk shall be transferred from any can or other vessel to any bottle or other container in the streets or public places." "The sale, exchange or delivery of milk by the process of 'dipping' or removing small quantities for a consumer from time to time from a containing vessel is forbidden." This rule is in a measure the outcome of the report of the milk commission, which was issued last February. In connection with the "dipping," the report says, "Some of the milk shops of the so-called dairy class have recently abandoned the sale of loose or dipped milk, dispensing all of their milk in jars. The majority continue the sale of loose milk. Many of these latter are kept neat and clean, but they follow the insanitary procedure of holding the vessels which are brought to be filled immediately over the milk can during the process of filling. The milk which overflows, drains over the hands and vessels and falls back into the milk can. The milk shops in certain portions of the city, chiefly in the districts supplying milk to the poor, constitute a very serious menace to the public health. We have seen milk sold in living rooms of homes, in filthy basement rooms, from cans in the street, as well as from shops which were distinguished by their lack of sanitary equipment."

TENNESSEE

Laboratory Building for University.—The trustees of the University of Tennessee, Memphis, are having erected a laboratory building for the use of the medical department. It will be a four-story brick and concrete structure, and the contract calls for its completion before September 15.

Typhoid Vaccination Popular in Memphis.—In response to the bulletins sent out by the Health Department of Memphis offering free inoculation against typhoid fever, Dr. M. Goltman, the health commissioner, announces that about 25,000 of the citizens of Memphis have already responded to this invitation and have been given the prophylactic inoculation.

WISCONSIN

Appropriation for Child Welfare.—The City Council of Milwaukee has appropriated $1,000 as a preliminary allowance for the child welfare work and has informed the health commissioner that additional appropriations will be made when needed.

Hospital Notes.—A free dispensary for tuberculosis has been established in West Allis, Milwaukee.——A tuberculosis sanatorium for Racine County is to be erected on a site west of Racine and will be known as Sunny Rest.——Twelve new shacks have been completed at the Social Workers Sanatorium for Tuberculosis, Milwaukee, which at present can accommodate twenty-four patients.——Outagamie County has appropriated $4,000 for a county tuberculosis sanatorium. The sanatorium fund now amounts to $9,000. A five-acre tract of land has been purchased between Little Chute and Kaukauna and the institution is to be known as the Riverview Sanatorium.——Dr. C. U. Senn has remodeled his home in Ripon and has transformed it into a hospital.

GENERAL AND FOREIGN

Plague Found in Trieste.—Press dispatches report the finding of two cases of bubonic plague by the port authorities at Trieste on board the steamer *Amphitrite* which arrived, July 27, from Beirut.

Dinner to Professor Pick.—Prof. Ludwig Pick, of Berlin, will deliver the Cartwright and other lectures in New York this fall. His American students will tender Professor Pick a complimentary dinner Saturday evening, November 16. Those who desire particulars should communicate with Dr. Charles Goodman, 969 Madison Avenue, New York City.

Death of a Pioneer in Biochemistry.—The death is reported of Prof. Ernst Schulze of Zurich, aged 72. Medicine is under obligation to him for the discovery of a number of new chemical substances such as glutamin, phenylalanin, arginin, etc., and the better realization of the close connection between the animal and vegetable bodies, that animal albumin, for instance, is constructed of the same "building stones" as vegetable albumin.

Plague Situation in the Islands.—Up to July 23 forty-three cases of plague had been reported from Porto Rico, with twenty-three deaths. Of these twenty-nine occurred in the old city of San Juan; nine cases in Santurce, a residential suburb of San Juan; two at Carolina, a town thirteen miles from San Juan; one at Loiza, a short distance from Carolina; one at Arroyo and one at Dorado. No new cases have been reported from Havana.

Third International Medical Congress on Industrial Accidents.—The following subjects have been selected for discussion at this meeting which convenes at Düsseldorf this week: Legislation in various countries on industrial accidents; importance of early functional treatment; vascular affections or deforming arthritis and industrial accidents; influence of accidents on formation and aggravation of tumors, and technic for examination of the injured.

Conference on Pellagra.—The preliminary program of the Pellagra Conference which is to be held in Columbia, S. C., October 3-4, includes an address to be given by Surgeon-General Rupert Blue, U. S. P. H. & M.-H. Service; a preliminary report by the Thompson-McFadden Commission on Epidemiology of Pellagra, and other papers dealing with the prevalence, geographic distribution, artificial production and other subjects of general interest in regard to this wide-spread disease.

Personal.—Col. William C. Gorgas, M. C., U. S. Army, has declined the invitation to become chairman of the Boston Board of Health. The government of Ecuador is said to have requested the United States to lend that country the services of Colonel Gorgas in order to improve the sanitation of Guya-

quil.——Dr. J. A. Nydegger, U. S. P. H. & M.-H. Service, received the degree of Master of Science from St. John's College, Annapolis, Md., recently, and at the same time had conferred on him the honorary degree of Doctor of Science.

Medical Department of United Fruit Company.—Dr. R. E. Swigart, New Orleans, general superintendent of the medical department of the United Fruit Company, has installed a branch office in New York for the administration of medical service to the company's fleet of steamers, and has placed Dr. J. D. Hadley in charge, with jurisdiction over the ports of New York, Boston, Philadelphia and Baltimore. Dr. P. Francis Murphy holds a similar position in New Orleans. The medical organization is a part of the general plan to promote the safety and comfort of passengers, officers and crew. It is the intention of the company to provide for its ships medical officers qualified to treat tropical diseases as well as those prevalent in the temperate zone.

Otologic Congress.—The Ninth International Otologic Congress is to be held at Harvard Medical School, Boston, August 12-17, under the presidency of Dr. Clarence J. Blake, Boston. The program includes an exhibition of microscopic and macroscopic specimens, collection of otologic books, reprints, photographs and drawings by American authors, an exhibit of radiograms of the mastoid process, a demonstration of the methods employed and the apparatus used in the education of and the amelioration of the condition of the deaf, together with exhibits showing the evolution of the telephone and dictograph. The entertainment committee has provided numerous luncheons, dinners, smokers, etc., for the members and guests. The prizes have already been mentioned in THE JOURNAL.

New Officers.—Norfolk & Western Railway Surgeons' Association, at Cedar Point, near Sandusky, O., June 18 and 19: president, Dr. Joseph A. Hall, Cincinnati; secretary-treasurer, Dr. T. D. Armistead, Roanoke.——Northern Tri-State Medical Association, thirty-ninth annual meeting, in Detroit, July 2-3: president, Dr. Victor C. Vaughan, Ann Arbor, Mich.; secretary, Dr. G. W. Spohn, Elkhart, Ind., reelected.——Sioux Valley Medical Association, in Fort Dodge, Ia., July 24: president, Dr. J. N. Warren; secretary, Dr. K. G. S. Browning, both of Sioux City, Ia.——Iowa and Illinois Central District Medical Association, in Davenport, Ia., July 11: president, Dr. W. W. Adams, Atkinson, Ill.; secretary, Dr. L. W. Littig, Davenport, reelected.——Austin Flint-Cedar Valley Medical Society, in Waterloo, Ia., July 10: president, Dr. E. E. Dunkelberg, Waterloo; secretary, Dr. C. F. Starr, Mason City, Ia., reelected. Next meeting-place Ackley.——Association of Surgeons of the Buffalo, Rochester & Pittsburg Railway Company, held on Lake Ontario, en route to Coburg, Ont., July 10: president, Dr. F. D. Pringle, Punxsutawney, Pa.; secretary, Dr. James G. Flynn, Ridgway, Pa.

Bequests and Donations.—The following bequests and donations are announced:

Eye, Ear, Nose and Throat Hospital, New Orleans, $100,000, by the late Isaac Delgado.

Babies' Hospital, Cleveland, $100,000, from H. M. Hanna, to be used toward the building and endowment fund.

Policlinic Hospital, Philadelphia, $5,000, for the endowment of a free bed in the name of the late Mrs. Caleb C. Roberts, with the stipulation that the bed is to be used by the patients of her son, Dr. John B. Roberts.

New York Post-Graduate Medical College and Hospital, one-seventh interests in certain trusts; New York Orthopedic Hospital, $5,000, and the Children's Aid Society, $10,000, by the will of the late Carolyn F. Butterfield.

Aid Association of the Philadelphia County Medical Society, $1,000, by the will of the late Mrs. Helen B. Roberts.

University of Pennsylvania, $35,000; Germantown Hospital, $5,000; Children's Hospital, $1,500, by the will of the late Elizabeth Wharton McKeen.

Presbyterian Hospital, Philadelphia, $5,000, by the will of the late Miriam Mullen, for the establishment and maintenance of a free bed in memory of the decedent's father.

Seymour Library Association, Auburn, N. Y., medical and surgical library, Auburn City Hospital, $1,000, to maintain a free bed for three years, and Dr. William S. Dodd, Caesarea, Turkey, surgical instruments and $500 by the will of the late Dr. William S. Cheesman, Auburn.

Jewish Hospital, Jewish Maternity Home and Mt. Sinai Hospital, Philadelphia, each $2,500, to establish free beds to be named for Rosalie Abrahams and Benjamin Bauer, by the will of the late Benjamin Bauer, and the residue of the estate to the Associated Jewish Charities for the establishment of the "Benjamin Bauer Helping Fund," the interest of which is to be distributed by the society.

Massachusetts General Hospital, Boston, $60,000 by the will of the late Mrs. Sarah E. Casanove for free treatment of the insane.

Plague Conference at New Orleans.—On the invitation of Dr. Oscar Dowling, state health officer, and Dr. W. T. O'Reilly, city health officer of New Orleans, a conference of health officials from Alabama, Georgia, Florida, Mississippi and Texas was held in New Orleans, Monday, July 29, for the purpose of considering plans for preventing the introduction into the Gulf ports of bubonic plague, and also the question of quarantine regulations in the event that plague infection should be discovered in a southern port. The states named were represented by one or more health officials, and three representatives of the Public Health and Marine-Hospital Service stationed at New Orleans, at the head of which service is Dr. J. H. White, also joined in the conference. Drs. Dowling, O'Reilly and White demonstrated the work being done incident to the thorough rat survey in New Orleans which has been in progress for the past three weeks since the outbreak of plague in Porto Rico and Havana. Drs. Duval and Seaman explained in detail the technic of the examination of the 333 rats already subjected to examination, among which one was found infected. The members of the conference were thoroughly impressed with the idea that every possible scientific precaution was being adopted at New Orleans, and while one or two ports had undertaken a rat survey, none had adopted the comprehensive plan effective in New Orleans. The visiting health officers, after having resolved themselves into the Southern Health Conference, with plans for a meeting at Mobile, agreed to make operative at once in their respective cities the following line of procedure: A rat survey to be limited to the water fronts; division of cities into districts, with segregation of rats of each area for examination; the examination of rats to include a rat autopsy, search for fleas, microscopic examination and recognition of infected rat localities. Regulations in regard to ships to include 36-inch rat shields on hawsers, rat guards along each gangway while the ship is being loaded or unloaded; fending the ship off of the wharf by four floating timbers joined together and inspection of crated cargoes; extra vigilance to be observed on the part of steamship companies before fruit is unloaded from vessels. In the event of infection being discovered in any city, an area of eight blocks is to be considered the area of suspicion. Further suggestions or regulations are to be adopted whenever infection is discovered.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, June 29, 1912.

The Parliamentary Committee on Nostrums

Dr. Cox, medical secretary of the British Medical Association, continuing his evidence (reported in a previous letter to THE JOURNAL) submitted a memorandum on the sale and advertisement of proprietary medicines. Both direct and indirect harm arose from their use. As to the former, evidence was scanty, either because of the relative inactivity of the ingredients, or because some disease was usually present which rendered it difficult to say that the medicine was the sole cause of death or injury. In some cases drug or alcohol habits were established. Indirect injury arose from the proprietary medicine being substituted for proper medical treatment. In cancer and tuberculosis valuable time was thus lost. The various forms of hernia were treated by internal and external administration of useless drugs. The claim to avoid operation and to go without a truss exposed the patients to the danger of death from strangulation. The advertisements connected with sexual matters were morally injurious. Dr. Cox was examined at considerable length as to the advertisement of proprietary medicines in the *British Medical Journal*, as follows: "The *British Medical Journal* publishes a large number of such advertisements?—Yes, of a kind. Some of them are secret?—Not in the sense that we do not know what is in them. We insist on knowing their composition. No advertisements are inserted in which, as far as those responsible for the journal know, exaggerated claims are made, and advertisements of preparations for which exaggerated claims are made elsewhere were declined. The advertiser is asked to state the active ingredients but not necessarily the details of the method of making the preparation." Questioned as to the number of proprietary medicines ordered by medical men, Dr. Cox said it was mainly indolence which led to ordering these things with a name rather than writing out a prescription. No puff articles in the ordinary sense were published in the journal; the notices of proprietary medicines therein were written in sober language and there was no connection between the publication of such notice and advertisement of the goods in the journal. There were some proprietary medicines which, owing to the method of their preparation, he preferred to similar compounds contained in the British Pharmacopeia. In some cases proprietary medicines were analyzed on behalf of the association before advertisements of them were inserted in the journal. Dr. Cox was confronted with a paragraph in an article recently published by THE JOURNAL of the American Medical Association stat-

ing: "American and European frauds of the ethical proprietary type are still largely used by the English physicians, as is evidenced from the fact that high-class British medical journals carry the advertisements of such humbugs. With the official organ of the British Medical Association carrying advertisements of such nostrums . . . the British profession will find difficulty in answering the question: Wherein is it worse for the public to buy medicinal preparations about which it knows nothing than it is for the medical men to prescribe preparations of whose composition they are and must be ignorant?" The copy of the number of THE JOURNAL containing this article was handed to Dr. Cox and after inspecting it he said: "To show how difficult it is to exercise efficient censorship, I may say there are advertisements to be found in this American journal which we would not allow to appear in the *British Medical Journal*." His attention was also called to certain advertisements in the *British Medical Journal*. He admitted that greater censorship should have been exercised and promised that attention would be given to them.

The Motor Peril

The public is becoming alarmed at the appalling and increasing list of tragedies due to mechanically driven vehicles. No fewer than 873 persons were killed and 20,226 injured by such vehicles in the United Kingdom last year. Nearly half of these accidents occurred in London, in which 410 people were killed and 14,445 injured. There are places in London which are nothing less than death-traps, especially for the aged, infirm and children. On the Fulham Road from Walham Green to Putney Bridge, a distance of about a mile, more accidents have occurred than anywhere else. In the past six months these amounted to fourteen, of which seven were fatal, and of these, three were cases of cyclists being run down. Even those in the full possession of their senses and in the prime of life are not safe. An American pastor, the Rev. E. O. Weld, aged 33, of Brooklyn, while on his honeymoon, was killed near the Strand by a motor 'bus. At the inquest his widow stated that his sight and hearing were unimpaired. In trying to avoid a taxicab he got in front of the motor bus and one of the front wheels went over him. To cyclists in particular the motor peril is a serious one. The National Cyclists Union is preparing to take serious steps in the matter.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 12, 1912.

A New Sign of Hepatic Insufficiency

At the last session of the Société médicale des hôpitaux de Paris, Dr. Roch, head of the clinics in the cantonal hospital of Geneva, read a paper on a method of establishing liver insufficiency, based on the fact that, while in the normal state the liver is capable of retaining a dose of 2 mg. of methylene-blue, in patients whose liver is affected, however, this dose of 2 mg. gives distinctly green urine. Dr. Roch's procedure is to have the patient take 2 mg. methylene-blue at 8 a. m., and to collect the urine until 8 p. m. in three glasses, each containing the renal secretion of a four-hour period. If the urine of the second glass, secreted from noon until 4 p. m., is colored green, the liver has not been able to hold the methylene-blue, but if this urine is colored yellow or yellowish that means, barring a pathologic condition of the kidney, that the hepatic filter is functioning normally. This test has given results in all cases agreeing with those furnished by the test of alimentary glycosuria. It is no surer but it is more simple and more readily accepted by patients.

Legal Age of Obligatory Revaccination

There has recently been an epidemic of small-pox in two suburbs of Paris. According to the report of the department of vaccination service, a large proportion of children, aged from 6 to 10—that is to say, not required by law to submit to revaccination—are liable to contract small-pox in spite of the first vaccination, given ordinarily in the first few months of life. Dr. Henri Dubief believes that the first revaccination ought to be at 7 years when the child enters primary school, the second at 13, and the third at 20.

Medical Experts in Cases of Industrial Accidents

M. Briand, minister of justice, has just sent out to the courts of appeal a circular on this subject mentioning that, according to the law, an expert cannot be a physician who has cared for the injured man or a physician connected with his employers' establishment or the insurance society with which the head of the establishment is connected. While the law does not expressly forbid the employment as expert of a physician connected with another insurance company, the minister advises against such employment, especially in cases of industrial accidents.

Death of Professor Chatin

Dr. Johannès Chatin, professor of histology at the Faculté des sciences of Paris, has just died, aged 65. He was the son of the celebrated botanist, Gaspard-Adolphe Chatin, and was known especially by his works on zoology, comparative anatomy, helminthology and teratology. He was appointed professor of the Faculté des sciences and in 1888 was chosen a member of the Académie de médecine and in 1900, a member of the Académie des sciences.

Disinfection of the Hands by Tincture of Iodin and Decoloration by Sodium Bisulphite

The employment of tincture of iodin to disinfect the surgeon's hands has not become general because of the difficulty of getting rid of the discoloration of the skin. The method of removing the discoloration by a solution of sodium bisulphite has been proposed by Dr. Taphanel of the Académie des Sciences. The method has the advantage of adding antiseptic action of the bisulphite to that of the iodin; moreover, the perspiration, which ordinarily necessitates washing during the operation, is suspended from an hour to an hour and a half.

The Disadvantages of Pyramidon in Typhoid

Dr. Hirtz has reported before the Société médicale des hôpitaux cases of several patients with typhoid fever in whom the administration of small doses of pyramidon (0.2 and 0.15 gm.) and caffein provoked an abrupt fall of temperature, with, in one case, copious greenish vomiting and abdominal muscular contraction making one think of intestinal perforation. Similar symptoms are said to have been observed after the administration of moderate doses of salicylic acid and even of antipyrin. All these drugs seem then to be contra-indicated in typhoid.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 11, 1912.

Personal

A few days ago, Moritz Seidel, formerly professor of pharmacology at Jena, died at the age of 76.

Prof. von Krehl of Heidelberg has received a call as director of the first medical clinic at Munich, to succeed Prof. von Bauer. He is as little likely to accept this appointment as the call to Berlin after the death of von Leyden.

Professor Binz, the noted pharmacologist, formerly director of the Pharmacologic Institute at Bonn, celebrated his 80th birthday, July 1.

Professor Gad, formerly director of the Physiologic Institute at Graz, a pupil of Du Bois-Reymond, celebrated his 70th birthday, June 30.

The Fritz Schaudinn Medal for Notable Research in Microbiology

The international jury to which Ehrlich, Gaffky, Golgi and Grassi belong, has awarded the Schaudinn medal to Dr. Chagas, of the Institut Oswaldo Cruz, at Rio de Janeiro. [His discovery of the trypanosome responsible for epidemic thyroiditis in Brazil—Chagas' disease—was mentioned editorially in THE JOURNAL, 1910, lv, 603.]

Home for Psychopathic Children

A curative-educational institution for psychopathic children will be opened in Berlin, like the one in Göttingen, an account of which I gave you some time ago. The institution is established by the German Central Bureau for Juvenile Hygiene *(Jugendfürsorge)*. The institution is intended, according to the conditions of the foundation, to furnish the possibility of appropriate institutional treatment to the poor for such children as do not get along well in the school on account of their insufficient intellectual ability, or who give no promise from attempts at education in the parents' home of future self-support. The home is intended only for boys of the ages from 8 to 15. The expense for care amounts to $15 (60 M) a month. If the means are sufficient, free places will be provided. The admission to the institution is given on the basis of a medical examination to take place in Berlin by the same psychiatrist who supervises the children in the institution.

Schiller's Skull

A few weeks ago, von Froriep, professor of anatomy at Tübingen, announced that by excavations at Weimar he had found the genuine skull of Schiller. The coffin in the princely mausoleum at Weimar, which stands by the side of Goethe's and is well-known to many Americans, and bears the inscription "Schiller," does not contain the remains of Schiller. In a recent article in the *Deutsche medizinische Wochenschrift*, Waldeyer calls attention to the fact that Schiller's corpse was deposited at Weimar in 1805 in the so-called Landschaftskassengewölbe. In 1826 the mayor of Weimar obtained from the above mentioned vault twenty-three skulls and selected one of them which he considered to be the skull of Schiller. Three physicians, among them the grandfather of the Tübingen anatomist, A. v. Froriep, gave it as their opinion that the selected skull was in fact the skull of Schiller. This reputed skull of Schiller, in addition to some parts of the skeleton which were selected from the mass of bones as probably belonging to it, was at the order of the Grand Duke deposited in a sarcophagus in the princely vault which served as a burial place for the grand duke's family. Before this burial in the princely vault, a plaster cast was taken of the skull, and similarly, in 1805, just before the burial of the body of Schiller, a death mask was taken. H. Welcker, professor of anatomy at Halle, had an opportunity to compare the plaster cast of the skull with the death mask, and he recognized that the cast of the skull could not belong to the death mask, as he showed more particularly in his pamphlet, "The Skull and Death Mask of Schiller," Braunschweig, 1883. This proof, which must be recognized as correct, aroused the desire to establish definitely the skeleton of Schiller and to give a place to it in the princely vault instead of the at least doubtful one now in the sarcophagus and labeled "Schiller." The systematic search of von Froriep began in March, 1911, with archeologic studies at Weimar, to secure definite data by which the skeleton of Schiller might be identified. His investigations show that since 1826, the year in which the mayor had the reputed remains of Schiller removed, there had been no bone of any sort taken from the official vault in which Schiller's body was buried and fifty-three skulls were found there. They were so well preserved that they could be employed for determination of identity. Of these fifty-three skulls only one agreed with the death mask of Schiller, and also a jaw was found in the neighborhood of this skull, which fitted the skull. The finding of the upper and lower jaws agreed with the information which has been handed down in regard to the teeth of Schiller. Von Froriep also investigated the negative evidence given by Welcker, and confirmed it by comparison of the plaster cast of the reputed skull of Schiller with the death mask. The anatomists assembled at Munich had an opportunity personally to examine the skull which is regarded by von Froriep as the genuine skull of Schiller, the cast of the reputed skull of Schiller, which rests in the Schiller sarcophagus in the princely vault at Weimar, and the death mask of Schiller. Waldeyer compared these three objects and assures us that he regards the skull which is pronounced by von Froriep to be genuine, as the skull of Friedrich von Schiller.

As was to be expected, opinions opposed to the findings of von Froriep have already been expressed. At the last session of the Berlin Anthropologic Society, the well-known scientist, Professor Neuhass (a physician), declared that the skull produced by von Froriep is too small for the plaster cast, and he also showed other inconsistencies. He was of the opinion—in which Prof. H. Virchow and von Luschan agreed—that a satisfactory solution of the problem is only possible if the skull which has previously been recognized as belonging to Schiller and the one now exhumed by von Froriep be investigated by a committee of prominent anatomists and anthropologists and be compared with the death mask.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 9, 1912.

Free Choice of Doctors for Members of the Sick Club

After long and tedious negotiations, an interesting experiment has been started in this city as regards the medical service of one of the Krankenkassen or sick club. The members of the club will be entitled to choose from among the staff of the doctors of the club any medical man they wish as their regular attendant and will be at liberty to change their doctor as often as they like. Any doctor may enter the staff of the club if he submits to the conditions of fees, which are 20 cents per visit in the surgery, 40 cents for a visit to the patient's home, 60 cents for a night visit; operations, specialist advice and midwifery at half the usual rates (of the district) for private patients. As the physicians appointed by other clubs are paid fees which work out in some instances not more than one-fourth of the figures mentioned above, it is evident that the advantage to the physician is great. On the other hand, the patients are at liberty to select the man they have confidence in, the moral ethics of which are easily conceivable.

Reform of the Penal Code of Austria: Its Medical Aspects

The government of this country has, after protracted studies, laid before parliament a series of amendments to the existing penal code, some clauses of which are important to the medical man. Thus the question of responsibility and youthful age has been remodeled according to the suggestions of renowned psychiatrists and makes irresponsible such individuals as must be regarded as "incapable to understand the wrong or injustice of a deed or to act accordingly to this understanding." The amendment says that the wrong-doer is punishable only for consequences of his deed which can be expected by a normally thinking person, if he uses due caution. Women and children are protected more extensively than formerly. The protection against sexual attacks has been only to the sixteenth year of age; now it is extended to the twentieth year. Maltreatment of children under 12 years of age is punishable by two years' imprisonment. Child labor, as well as that of young girls, is also strictly prohibited. Several medical suggestions have been complied with in the bill. Quackery conducted for money is strictly prohibited. The refusal of medical aid or obstetric help will be punishable only if the case is urgent; previously a medical man could not refuse to comply with a call for help. The clause which ordered the physician or midwife to report to the police a suspicious death or illness has been struck out, because it necessarily interfered with the confidence between patient and physician.

Marriages

WILLIAM SYLVESTER STREKER, M.D., Providence, R. I., to Miss Helen Sarah Callahan of Elmira, N. Y., in New York City, July 17.

EMMETTE TRIBLE GATEWOOD, M.D., Toano, Va., to Miss Belle Winfree Moss of Booker, Va., in Washington, D. C., July 1.

HOWARD H. JOHNSON, M.C., U. S. Army, to Mrs. E. M. Jones of San Francisco, in Washington, D. C., July 3.

LYMAN RAY CRITCHFIELD, M.D., Galesburg, N. Dak., to Miss Irene Pauline Siverson of St. Cloud, Minn., recently.

FRANK LEON WALDORF, M.D., Rochester, N. Y., to Miss Frances Amelia Marshall of Jackson, Ont., July 16.

THOMAS W. LEWIS, M.D., Chicago, to Miss Mamie Fauntleroy of Avoka, Va., at Lynchburg, Va., July 10.

HAROLD GUEGNON FABIEN EDWARDS, M.D., Abbeville, La., to Miss Inez M. Perrault of Opelousas, La., July 17.

GILBERT FRANKLIN DOUGLAS, M.D., Meridian, Miss., to Miss Mary Rachael Griffin of Chunky, Miss., June 26.

EARLE FRANCIS RISTINE, M.D., Cedar Falls, Wash., to Miss Lucy Hazel Wilson of Victoria, B. C., June 29.

LOUIE ELSWORTH LANGLEY, M.D., Williamsport, Pa., to Miss Mona L. Burke, at Centerville, Md., June 29.

WILLIAM ALFRED ROLFE, M.D., to Miss Ellen Y. Martinollick, both of Boston, in New York City, July 9.

CORYDON G. SNOW, M.C., U. S. Army, to Miss Anna M. Watkins, at Muskegon, Mich., June 22.

LEE JOHNSON, M.D., East Flat Rock, N. C., to Miss Mary Lucy Brown of Decatur, Ga., July 10.

WILLIAM P. MELODY, M.D., to Miss Marie Louise Burns, both of Detroit, Mich., July 11.

JOHN TYLER ENSMINGER, M.D., to Miss Helen M. Shearer, both of Harrisburg, Pa., July 17.

HARRY ARANOW, M.D., New York City, to Miss Dora Bittman of Brooklyn, June 30.

BERT O. OWENS, M.D., to Miss Charlotte O'Connor, both of St. Louis, Mo., recently.

SIMON H. SOBOROFF, M.D., to Miss Rebecca Soboroff, both of Chicago, June 25.

Deaths

Nathan Mayer, M.D. Cincinnati College of Medicine and Surgery, 1859; a member of the American Medical Association; for twenty-seven years president of the Board of U. S. Pension Examining Surgeons of Hartford, Conn.; died in the Hartford Hospital, July 10, from heart disease, aged 73. He was visiting physician to St. Francis Hospital; served as a surgeon during the war between France and Italy; and also was assistant surgeon of the Eleventh Connecticut Volunteer Infantry and later surgeon of the Sixteenth Connecticut Volunteer Infantry and a medical purveyor during the Civil War. He was appointed surgeon general of Connecticut in 1872-1873. He was once president of the Hartford Medical Society, which on January 1, honored him as its oldest member by presenting him with a silver loving-cup.

Heneage Gibbes, M.D. University of Aberdeen, Scotland, 1879; for three years curator of the Anatomical Museum of Kings College, London; in 1884 a member of the Royal Commission to investigate the cause of cholera in India, and three years later made professor in pathology in the University of Michigan, holding this position until 1895; health officer of Detroit from 1898 to 1901; prominent as a pathologist and one of the earliest workers against tuberculosis; died at his home in Oklahoma City, July 18, from senile debility, aged 80.

Joseph Cooper Hutchinson, M.D. Baltimore (Md.) Medical College, 1888; of Denver; a member of the Colorado State Medical Society; a member of the staff of Mercy and Denver County hospitals and head physician for the Fraternal Union of America; aged 49; professor of obstetrics in the University of Colorado School of Medicine, Boulder; was instantly killed in Elk Creek Canon, July 9, when his automobile plunged through a bridge into the creek.

Robert Fulton Boyd, M.D. Meharry Medical College, Nashville, Tenn., 1882; a prominent colored physician of Nashville; professor of gynecology and abdominal surgery in his alma mater; founder of the Boyd Infirmary and Mercy Hospital, and president of the People's Savings Bank; died at his home in Nashville, July 20, aged 54.

Archibald Cuolahan, M.D. Rush Medical College, 1887; a member of the American Medical Association; formerly a practitioner of Fayette and Merrill, Wis.; but for the last seven years a practitioner of DeWitt, Mich.; died in the City Hospital, Lansing, July 13, nearly four months after a surgical operation, aged 52.

Henry C. Largeman, M.D. Medico-Chirurgical College of Pennsylvania, Philadelphia, 1899; a member of the Medical Society of the State of Pennsylvania and of the staff of the Medico-Chirurgical, St. Mary's and Polyclinic hospitals, Philadelphia; died at his home, July 16, from spinal paralysis.

Henry M. Field, M.D. College of Physicians and Surgeons, New York City, 1862; formerly professor and emeritus professor of theraputics in Dartmouth Medical School; for several years a practitioner of Pasadena, Cal.; died at the home of his son in Los Angeles, July 11, aged 73.

William Henry Dickerson, M.D. University of Nashville, Tenn., 1860; a member of the Kentucky State Medical Association; major and surgeon in the Confederate service throughout the Civil War; died at his home in Bowling Green, Ky., July 16, from cerebral hemorrhage, aged 78.

Rington Davis, M.D. Medical College of Ohio, Cincinnati, 1884; formerly of New York City and Talbot County, Md., but for the last two years a resident of England; died in a hotel in Brighton, July 9, from the effects of a gunshot wound believed to have been self-inflicted, aged 56.

Sprague Winchester, M.D. Tulane University, New Orleans, 1882; of Natchez, Miss.; died at his home, July 20, from the effects of a gunshot wound of the head, believed to have been self-inflicted, with suicidal intent, while despondent on account of ill health, aged 54.

John Addison Moorman, M.D. University of Maryland, Baltimore, 1868; Bellevue Hospital Medical College, 1873; a member of the Medical Society of Virginia; formerly of Haleford, Va.; died at his home in Hendrick's Store, Va., July 16, from nephritis, aged 68.

Edward Joseph Shanahan, M.D. College of Physicians and Surgeons, Baltimore, 1896; a member of the American Medical Association; at one time city physician of Taunton, Mass.; died at his home in that city, June 27, from facial erysipelas, aged about 50

Joseph E. V. Mathieu, M.D. Victoria University, Coburg, Ont., 1879; state senator from Central Falls, R. I., and for eight years coroner of the city; president of the Pawtucket Medical Society; died at his home, July 12, from heart disease, aged 49.

Sewell Mizwell, M.D. Vanderbilt University, Nashville, Tenn., 1905; of Brownsville, Tex.; died at his home, July 18, from the effect of gunshot wounds, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health, aged 30.

R. L. Dudley, M.D. Chattanooga, Tenn. Medical College, 1892; a member of the State Medical Association of Texas; aged 44; died at his home in Marysville, June 3, from the effects of an accident in which he was thrown from his buggy.

George W. Shidler, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1875; a member of the American Medical Association and Medical Society of the Missouri Valley; died about July 11, at his home in York, Neb., aged 63.

Naomi Garton, M.D. Drake University, Des Moines, Ia., 1892; since 1881 a missionary and medical missionary in Burmah, under the American Baptist Missionary Union; died at the home of her sister in Des Moines, July 8, aged 66.

Horace M. Bellows, M.D. University of Pennsylvania, Philadelphia, 1861; acting assistant surgeon, U. S. Army during the Civil War, for thirty-six years a practitioner of Huntingdon Valley, Pa.; died in Philadelphia, July 12, aged 73.

Robert Willis Hoyt, M.D. Rush Medical College, 1875; of New Lisbon; a member of the State Medical Society of Wisconsin; died in St. Francis Hospital, La Crosse, July 16, after an operation for the removal of gall-stones, aged 60.

William Seymour Johnson, M.D. Hahnemann Medical College, Chicago, 1868; one of the oldest homeopathic practitioners of that city; a veteran of the Civil War; died at his home, July 27, from cerebral hemorrhage, aged 82.

William S. Stoakley, M.D. Jefferson Medical College, 1851; a member of the Medical Society of Virginia; surgeon in the Confederate Service during the Civil War; died at his home in Cheriton, July 11, from senile debility, aged 79.

John Solomon Kreiter, M.D. Bellevue Hospital Medical College, 1882; a member of the Medical Society of the State of Pennsylvania, and of the School Board of Akron; died at his home in that city, July 18, aged 59.

Dyer Morgan Marshall, M.D. Eclectic Medical College of the City of New York, 1891; for several years a practitioner of Toledo, Ohio; died at his home in Forestport, N. Y., July 14, from organic heart disease, aged 54.

Albert Paul Maschger, M.D. University of Minnesota, Minneapolis, 1905; of St. Paul; died in the Raddison Hotel, Minneapolis, July 17, from the effects of an overdose of morphin, self administered, aged 30.

Russell Caffery, M.D. Tulane University, New Orleans, 1891; a member of the American Medical Association and a leading practitioner of San Antonio, Tex.; died suddenly at his home, July 11, from uremia, aged 44.

John William Righeimer, M.D. College of Physicians and Surgeons, Chicago, 1910; head intern of the St. Anthony De Padua Hospital, Chicago; died in Garrett, Ind., July 12, from ptomain poisoning, aged 24.

William L. Michael, M.D. Kansas City (Mo.) Medical College, 1888; a member of the State Medical Association of Texas; died suddenly at his home in Sherman, July 19, from rheumatism, aged 50.

Galloway Truax, M.D. Castleton (Vt.) Medical College, 1849; for many years a practitioner of Maquoketa, Ia.; died at the home of his son in Chicago, July 27, from pleurisy, aged 86.

Alfred M. Haight, M.D. New York Homeopathic Medical College, New York City, 1879; of White Plains, N. Y.; died suddenly at Ocean Grove, N. J., July 14, from heart disease, aged 56.

Jesse Burdette Hyland, M.D. Harvard Medical School, 1884; formerly a member of the American Medical Association; died suddenly at his home in Keene, N. H., July 11, aged 50.

L. J. Kynett, M.D. Jefferson Medical College, 1876; a pioneer practitioner of southwestern Iowa; died at his home in Hamburg, July 17, from cerebral hemorrhage, aged 70.

Luther E. Jones, M.D., University of Tennessee, Nashville, 1903; a member of the Kentucky State Medical Association; died at his home in Benton, Ky., July 3, aged 35.

Henry M. Pusey, M.D. University of Louisville Ky., 1880; one of the old-school, family physicians of Louisville; died at his home, July 22, from nephritis, aged 54.

Carolyn I. Keife, M.D. George Washington University, Washington, D. C., 1894; formerly of Westfield, Mass.; died at White Plains, N. Y., July 3, aged 40.

Isaac M. Houston, M.D. St. Louis College of Physicians and Surgeons, 1889; died at his office in Falls City, Neb., July 16, from acute gastritis, aged 51.

George Louis Rudolph Schwegler, M.D. Indiana University School of Medicine, Indianapolis, 1911; died at his home in Salem, Ore., July 8, aged 28.

Charles W. Ammerman, M.D. Western Reserve University, Cleveland, O., 1873; died at his home in Greenwood, Del., April 11, aged 68.

Stephen Sanford Prosser, M.D. Jefferson Medical College, 1896; died at his home in San Jose, Cal., July 14, from tuberculosis, aged 45.

Edward Leo Gaus, M.D. Albany (N. Y.) Medical College, 1897; died June 29, at his home in Albany, aged 44.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

GOVERNMENT METHODS IN DEALING WITH NOSTRUMS IN GERMANY

A good illustration of the way in which the question of nostrums is handled in Germany, is given in a recent article in the *Berliner Morgen-Zeitung*. The nostrum exploited in this country under the name of "Nature's Health Restorer" by the M. A. Winter Company, of Washington, D. C.—formerly operating under the name of the Western Medical Institute—is also advertised in Germany under claims very similar to those made in this country. The Winter Company came to the attention of the Berlin police. How the police dealt with the matter is shown by two warning notices which we translate from the *Morgen-Zeitung:*

"WARNING

"For a number of years, numerous agents have been solicited by the M. A. Winter Co., of Washington, D. C., to increase in the territory of the kingdom the use of the medicine sold by them under the name 'Nature's Health Restorer.' According to the information obtained, this medicine, which the firm styles a 'universal cure,' consists simply of a laxative harmless in favorable cases; it can by no means perform what the firm promises, but is sold for a high price. The undertaking amounts simply to an exploitation of the German public. The remedy, according to the resolution of the Bundesrat of June 27, 1907, is included in list B of secret remedies and consequently may be dispensed only on the order of a physician. Agents other than pharmacists who deal in this remedy, which is restricted in its sale to pharmacies, render themselves liable to punishment. "President of the Police."

Winter attempted to evade this restriction by changing the name of his stuff to "Nalther's Tablets." He was not sharp enough, however, for the German police, who promptly issued the following warning:

"WARNING

"The remedy introduced into the trade by the M. A. Winter Co., of Washington, as 'Nature's Health Restorer' (Natürlicher Gesundheitsherstelter), has recently been sold by this firm under the name of 'Nalther Tablets.' The medicine was included, according to the resolution of the Bundesrat of June 27, 1907, in list B of secret remedies. As the composition of the tablets has remained the same, they are allowed to be sold, even under the new name, according to police ordinance of Nov. 14, 1907, only by apothecaries on the prescription of a physician, and may not be publicly advertised. Against the purchase of this article, which in a favorable case amounts only to a simple laxative sold for a high price, and one which can in no way perform what the firm promises, I have already given a public warning. "President of the Police."

It should be explained that in Germany two classes of tradesmen deal in drugs: (1) the so-called druggists are allowed to sell simple remedies without a physician's prescription, but cannot sell poisons or put up prescriptions; (2) the apothecaries or pharmacists are professional men who put up physicians' prescriptions. It should be understood that in dealing with these matters, the police are carrying out a law enacted by the imperial and not by the local—Prussian or Berlin—government. The difference from the method pursued in this country is due not so much to the fact that the police are the agents, as to the wider extension of the functions of the imperial government.

Correspondence

Avoidance of Swimmers' Cramp

To the Editor:—Swimmers' cramp (the discussion of which began in THE JOURNAL, July 6, p. 53), is a condition well worthy of consideration. As it is the irony of fate to be thus attacked when immediate assistance cannot be obtained, preparedness is our most valuable asset. During the past few years I have had the pleasure of swimming in both the Atlantic and Pacific oceans quite frequently. A few hours' ride across the isthmus will permit one to enjoy both on the same day. My longest swim has been from Corozal to Balboa, a trifle over 2 miles. On several occasions in my earlier experience I have been embarrassed by the occurrence of severe "cramps" affecting the flexor group of muscles of one or both lower extremities. This usually developed after a strenuous effort continued for some time against a strong current or a heavy sea, the water being moderately warm.

I have found that the safest and most comfortable way to enjoy oneself in the water is to acquire the confidence which is given by the ability to float, and the knowledge that whenever exhausted one can slip over on the back and rest, or in case of "cramp" permit the circulation to return to normal and the tonic spasm of the muscles to subside, which usually occurs within a few minutes. Then, until confidence is fully restored, one may swim leisurely along on the back. This is far superior to the "tub" position, which does not permit the complete relaxation of all the limbs. Because of greater specific gravity, salt water is much more buoyant than fresh water.

Symmetrical swimming, if I may coin the term, whether it be the Australian crawl or one of the other overhand or under-water strokes, has much to recommend it, as it distributes the exercise equally and avoids overuse of any one extremity. By this term I mean the alternate use of one arm and one leg, which produces a rhythm somewhat similar to that of the pacer, but of slower cadence. This is not necessarily a rapid method of water locomotion, but in my opinion it borders closely on the natural movement of the arms and legs when the pedestrian is swinging along at his natural gait, and under favorable conditions might be continued for long distances in water without causing excessive fatigue.

Mouth-breathing I find obviates to a great extent the tendency to water-choke, or reflex spasm of the larynx. For instance, during inspiration through the mouth, should an especially vicious whitecap strike the posterior pharyngeal wall, a forced expiratory blast relieves the situation and by rapidly turning the head aside the inspiration can be completed, whereas water inadvertently drawn through the anterior and posterior nares cannot be so readily disposed of and is more frequently aspirated into the larynx. Digestion should be well advanced after a full meal before one enters the water, say an hour or two, so that the blood from the splanchnic area may be spared for surface warmth of the body. E. B. Gleason of Philadelphia is of the opinion that many cases of drowning probably follow a severe aural vertigo from suddenly increased interlabyrinthine pressure caused by severe buffeting in the surf. He recommends that patients with ear diseases tampon the external auditory canal during bathing, with petrolatum-covered cotton.

CHARLES M. STROTZ, M.D., Paraiso, C. Z.

American Blue Book of Biography

To the Editor:—I wish to call the attention of your readers to a request for biographic information which many of them may receive from the so-called American Blue Book of Biography. The form of the request, which contains a small attached proof to correct, is so similar to that to which physicians are accustomed from medical directories that one is quite likely to comply mechanically, and return the sheet with necessary corrections. The promoters of the enterprise seem to have counted on this, for the request above the bit of proof, which will probably be overlooked, reads as follows:

"Dear Sir:—Please correct and return biography below for publication in . . . the American Blue Book of Biography, the only obligation on your part being the acceptance of one copy containing your biography, payable on delivery if satisfactory."

As the price of the book is $5, no one should thus become an unwitting subscriber to it by returning data about himself, unless he really wishes to pay the price. The scheme is a clever one and I have therefore thought it worth while to call the attention of medical men to it.

THEODORE C. JANEWAY, New York.

The Mongoos as Plague-Carrier in Porto Rico

To the Editor:—Having lived in Porto Rico and being familiar with conditions there, I should like to call attention to the mongoos as a possible factor in spreading the plague, as this animal does not seem to have been mentioned in this connection.

The mongoos is about the size and shape of our timber or large gray squirrel and is said to have been introduced into Porto Rico for the purpose of exterminating rats. While it has not done this, it has well-nigh exterminated the birds by robbing their nests. The mongoos is so nearly like the rat and the squirrel in size, habits and haunts that it would seem to be quite as likely to contract plague as our squirrels, which are known to be susceptible and therefore dangerous carriers.

Our plague experts in Porto Rico would do well to examine all these animals that can be captured, and they should be killed as well as rats. Even if it should be proved that mongooses are not susceptible to plague, their destruction would still be of considerable economic value to Porto Rico.

C. E. RUTH, Des Moines, Iowa.

An Antiseptic Thermometer Case

To the Editor:—I have been interested in the references of one or two of your correspondents to the clinical thermometer (THE JOURNAL, Oct. 21, 1911, p. 1357; June 8, 1912, p. 1756, and July 6, 1912, p. 52). It is a small instrument, but how very important! I believe it is a pardonable offense if a physician appears overfastidious in the presence of his patient in regard to the cleaning of his thermometer. We revolt at using a spoon or knife and fork that is not absolutely clean; how much more so when it comes to taking into our mouths a thermometer which we know has been the rounds of people suffering from various diseases! A thermometer case, which suspended by its chain, is always upright, is very convenient, I have found. Into it I pour once a week a few drops of a dilute formaldehyd solution. This together with washing the thermometer before and after using renders it, I think, doubly safe.

J. H. DEMPSTER, Detroit.

Detecting Tubercle Bacilli—A Possible Source of Error

To the Editor:—With reference to a communication of Dr. Fine in THE JOURNAL (July 20, p. 213), on "A Simple Method for Detecting Tubercle Bacilli in Sputum," I wish to call attention to a possible source of error.

There are several acid-fast bacilli which require special management in differentiation. This statement does not make it clear that these extraneous factors were taken into consideration. From Dr. Fine's method I believe that differentiation must chiefly be made from the hay bacillus.

F. E. BOUZA, M.D., Gretna, Neb.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TECHNIC OF WASSERMANN REACTION

To the Editor:—Please describe the technic of the Wassermann reaction.

E. A. WATSON, M.D., Kearney, Neb.

ANSWER.—The technic of the Wassermann reaction is described in recent text-books on clinical diagnosis. The following is a brief description of the technic:

In order to make a Wassermann test it is necessary first to put together (*a*) a syphilitic antigen, (*b*) a serum suspected of containing syphilitic antibodies, and (*c*) a small amount of guinea-pig serum to furnish the complement. This mixture is incubated for a certain period (forty-five minutes) at 37 C. At the end of this time if there are syphilitic antibodies in the suspected serum they will have combined with the antigen and with the complement so that there will no longer be any free complement in the serum. If this serum is now added to a mixture of sheep's blood-corpuscles and inactivated hemolytic (heated or immune) serum, no laking or hemolysis will take place because complement has been removed. On the other hand, if the suspected serum contained no syphilitic antibodies no combination with the antigen will have occurred and complement will remain free, so that when sheep's corpuscles and hemolytic serum are added, the free complement will cause hemolysis.

A positive Wassermann reaction causes no change in the mixture of blood-corpuscles and inactivated hemolytic serum, but in case of a negative reaction hemolysis occurs and the mixture of blood-corpuscles and inactivated hemolytic serum becomes transparent and red from the liberated hemoglobin.

For the performance of the reaction the following are needed:

1. Syphilitic antigen, best obtained from syphilitic liver. It has been found that extract obtained from the heart of the guinea-pig answers the purpose. These can be obtained ready prepared from certain laboratories. If made by the physician, the organ should be ground with sand and warmed in a water-bath at 60 C. for an hour with 9 c.c. of 95 per cent. alcohol for each gram and filtered. This filtrate should be kept at room temperature but in the dark. The degree of the dilution in which these extracts can be used should be ascertained by testing both against normal and syphilitic serums. It is convenient to make dilutions of 1:5, 1:10 and 1:20. If with the 1:5 dilution, in the presence of normal serum, the hemolysis is not complete at the end of two hours, in the incubator, after the addition of the hemolytic serum, while in 1:10 it is complete, the latter dilution can be used in testing a suspected serum.

2. Guinea-pig serum to serve as a source of complement. The blood should be obtained a few hours before use; if practicable, the evening before. The blood is allowed to clot in a suitable container and then kept over night on ice. The following morning the serum is pipetted off. Before use the serum is diluted 1 to 10 with 0.85 per cent. solution of sodium chlorid.

3. Inject 30 c.c. of a 50 per cent. mixture of washed sheep's blood-corpuscles into a rabbit every week or ten days (best intraperitoneally for three or four times). A week or ten days after the last injection the blood may be removed from the heart, the serum collected, inactivated by heating at 56 C. for half an hour, and kept on ice ready for use. This is also known as an amboceptor. It contains amboceptor (lytic antibody) for sheep corpuscles but no complement. Care should be taken to secure asepsis in these operations.

4. Sheep's blood obtained from the jugular vein of a sheep in a sterile flask and defibrinated by glass pearls. It is washed with salt solution two or three times and then mixed with salt solution either in the proportion of 5 per cent. or 50 per cent., according as one adheres to the cubic centimeter plan or drop method for measuring quantities.

The blood-serum of the patient to be tested is obtained as follows: Collect blood from the vein or finger, allow it to clot; remove the separated serum; centrifugate to clearness; pipet off into test-tube and heat at 56 C. for one-half hour.

Before making the reaction it is necessary: (1) to standardize the amboceptor; (2) to see that extract alone does not bind complement or lake (hemolyze) sheep's corpuscles; (3) to see that the blood-corpuscles have not become laked (hemolyzed); (4) to see that the complement is active.

The test is made as follows: For each serum two small test-tubes are required and several tubes for controls of the materials as above, these being repetitions of the tests of material made before beginning the test. Add 10 drops of salt solution to each tube. Add a drop of serum to each of the two tubes used for a given serum. Then add two drops of organ extract to one of them. To one of the control tubes add two drops of organ extract. To each add a drop of complement. Shake tubes and place in incubator for one hour. Remove and add to each a drop of standardized amboceptor and one drop of 50 per cent. suspension of sheep corpuscles. Incubate for an hour and a half and then read the result. All controls with serums alone, with normal serums and with organ extract alone should be hemolyzed. If hemolysis has occurred in tubes containing suspected serums and organ extract, the result is regarded as negative. If hemolysis has not occurred at all, or only incompletely, in these tubes, the result indicates that the patient furnishing the serum is affected with syphilis.

Some workers use uniformly 0.5 c.c of both the solutions instead of drops as recommended.

The best way and the surest to learn to make the test is by visiting a good laboratory.

ACID SODIUM PHOSPHATE

To the Editor:—1. Please describe acid sodium phosphate, referred to in THE JOURNAL (July 6, 1912, p. 38), in the editorial on "The Conditions for the Effective Action of Urinary Antiseptics." 2. What is the dose? 3. What is the mode of administration in connection with hexamethylenamin? 4. How can it be obtained?

FRANK E. BROWN, M.D., Baltimore.

ANSWER.—1. Sodium acid phosphate (NaH_2PO_4), is formed from ordinary disodium hydrogen phosphate (Na_2HPO_4), by treating the latter salt with phosphoric acid. It is supposed to be formed to some extent whenever sodium phosphate is dissolved in an acid. It is present in acid urine and is the salt to which the greater part of the acidity of the urine is due. Sodium acid phosphate is a crystalline substance which dissolves readily in water, forming an acid solution. It is converted into the ordinary or disodium hydrogen phosphate by the action of alkalies so that in the intestines and in the blood it would exist chiefly in the form of the neutral or disodium hydrogen salt.

2. The dose would depend on the reaction of the urine. If it were neutral, a quantity sufficient to restore the ordinary degree of acidity would be an appropriate dose. If we calculate the average acidity of urine at 617 c.c. of tenth-normal acid for twenty-four hours, the equivalent amount of dihydrogen sodium phosphate (Mol. W. 121) would be approximately 8 gm. for twenty-four hours, which could be administered in 1-gram doses once in three hours. Doses of 1 to 1.5 gm. (15 to 20 grains) should be given at frequent intervals until the urine becomes acid. Larger doses would not be likely to do harm.

3. The necessary dose can be administered in solution suitably diluted and sweetened like lemonade. A solution of the acid phosphate could be made extemporaneously at any time by dissolving the equivalent quantity of ordinary sodium phosphate in water and adding the necessary amount of diluted phosphoric acid to convert the sodium phosphate into the acid salt. Thus:

℞	gm.	
Sodii phosphat.	80|00	℥ij
Acidi phosphorici dil.	200|00	℥vi
Aquæ ad	300|00	℥xij

M. Sig. Take a tablespoonful in plenty of water once in three hours.

4. Acid sodium phosphate is sold by some dealers in chemicals, but as indicated, there seems to be no need to purchase it for therapeutic purposes.

PREPARATIONS OF BULGARIAN BACILLUS

To the Editor:—May I ask through you Dr. Ralph Oakley Clock of New York, author of "Intestinal Implantation of the *Bacillus Lactis Bulgaricus* in Certain Intestinal Conditions of Infants, with Report of Cases" (THE JOURNAL, June 29, 1912, p. 2017), where he has obtained the tablets of the *Bacillus lactis bulgaricus?* Does any concern manufacture them? Does the dose differ according to age and severity of the disease?

S. G. PAVLO, M.D., Malden, Mass.

ANSWER.—This letter is one of many received to the same effect. Some correspondents ask about an article by Dr. J. G. Clark, having seen the account quoted in a newspaper which printed Dr. Clock's name wrongly. The inquiry printed above was referred to Dr. Clock, who writes that the preparation used in his reported cases was "Bulgara Tablets," a product of the laboratory of Hynson, Westcott & Co., of Baltimore. This product is fully described in New and Nonofficial Remedies, 1912, p. 127.

The action of the *Bacillus lactis bulgaricus* is supposed to depend on the production of lactic acid from the carbohydrate in the intestinal canal. As the bacillus multiplies in the intestine under favorable conditions, and is in itself not injurious, there is no special reason to vary the dose according to age. If the desired effect is not obtained, it would be advisable to give larger doses of the culture of the bacillus, but it must be remembered that the quantity of acid formed depends as much on the amount of carbohydrate food present as on the number of bacilli.

TECHNIC OF PERUTZ REACTION

To the Editor:—Please give the technic of the Perutz reaction for the serodiagnosis of syphilis.

H. F. C., Baltimore.

ANSWER.—Details of the technic of the Perutz reaction are given by Jensen and Feilberg in the article abstracted in THE JOURNAL, July 13, 1912, p. 152. While the Wassermann reaction requires several days of preparation, the Hermann-Perutz reaction requires only two solutions:

1. Sodium glycocholate	2.0
Cholesterin	0.40
Alcohol 95 per cent.	100.00
2. A 2 per cent. water solution of sodium glycocholate.	

The necessary material can be kept ready and the solutions made in a short time before the test is made. Solution 2 must be prepared fresh every time. After the serum has been inactivated for a half hour at 55 C. (131 F.), as in the Wassermann reaction, 0.4 c.c of the serum is drawn off with a pipette and 0.2 c.c of each solution added to it, but Solution 1 must first be diluted with water in proportion of 1:20. After vigorous shaking, the mixture is set away at room-temperature, and the positive reaction occurs in the form of fine, characteristic flakes which appear in the preparation. According to the size of the flakes and the greater or smaller amount of the sediment, the strength of the reaction is designated with +, ++ or +++.

The authors have modified the method by setting the mixture away in a thermostat with constant temperature of 21 C. (69.8 F.) and, instead of first measuring off Solution 1 and then Solution 2, they have drawn off from a larger mixture of the two solutions 0.4 c.c., thus saving one operation and reaching a greater degree of exactness.

No other serum or corpuscles than that of the patient are needed.

CRYING OF THE FETUS IN UTERO

To the Editor:—Are there any cases on record in which the infant has uttered cries while *in utero?*

A. W. B.

ANSWER.—The possibility of the mature fetus crying *in utero* is indisputable: "vagitus uterinus," as it is called, is, however, exceedingly rarely heard. It is not uncommon for a child *in utero* to have more or less violent movements due to an intra-uterine asphyxia; during such convulsive efforts there is generally a participation of the respiratory muscles of the chest and diaphragm. If the membranes have been ruptured, and air reaches the nostrils and mouth, a cry may be produced of sufficient intensity to be heard by those present. In addition to the asphyxia some writers maintain that some stimulus to the fetal skin must be given—as, for instance, the operator's hand in the act of performing a version. At any rate, it is in the production of an internal version that the introduction of air is most likely to occur and, therefore, crying to be elicited. The citation of cases of vagitus in which the membranes are intact is purely apocryphal.

SODIUM CARBONATE TREATMENT OF ALBUMINURIA

To the Editor:—Please give reference to an article by Fischer on albumin, and the sodium carbonate treatment.

E. A. WATSON, M.D., Kearney, Neb.

ANSWER.—Fischer has published his views in a book entitled "Nephritis: An Experimental and Critical Study of Its Nature, Cause and the Principles of Its Relief," J. Wiley & Sons, 1912. New York; price $2.50. The following may also be referred to: "The Nature and the Cause of Edema," THE JOURNAL, Sept. 5, 1908, p. 830; "Practical Points in Treatment of Nephritis," *Ohio State Med. Jour.*, Columbus, Aug. 15, 1911. An article by Dr. A. R. Moore, Berkeley, Cal., will appear in THE JOURNAL soon, probably August 10.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE RIGHT OF CHILDREN TO PROPER SCIENTIFIC TREATMENT

Among the many excellent editorials on public health which have recently appeared, the leading editorial in the Chicago *American* for July 23 is easily one of the strongest, sanest and most logical. Discussing the right of parents to decide what treatment shall be given their children, the *American* says:

This newspaper has advocated and does advocate the establishment of a public department of health under the management of the national government.

The government and the people of the United States, spending millions to tell farmers how to care for young pigs, horses, chickens and geese, should spend some money telling mothers and fathers how to care for their children—and, if necessary, compelling proper care of those that need care.

This wise measure has been opposed by many that do not understand it, and by many others that have good reasons for fearing science and intelligent action.

Some of those that hate the idea of a department of health are well-meaning dreamers who amuse themselves by saying that there is no disease—until disease comes. Then they die or send for a doctor.

Others make money by exploiting the diseases, terrors and sorrows of humanity and fear the spread of knowledge.

Who Says "DON'T"?

Among those that oppose the public health department is one who writes as follows:

"You speak of the great good that the government does through the departments that give to the farmers information regarding the care of their various animals, all of which is perfectly true and a great work, and then of the lack of interest displayed by the same government in caring for the health of the children. But it does not seem to me that the cases are parallel, because in the case of the animals they, being dumb brutes, must take whatever kind of care is given to them without any choice in the matter, but when it comes to a human being he, or she, is absolutely entitled to the right to choose for himself, or herself, what method of treatment he, or she, desires. Or in the case of children, the parents have the right to make this choice, as we certainly are entitled to the inalienable right when it comes to the selection of our medical school as we are in selecting our religion. And should this department of health be established it would without doubt be run absolutely by physicians of the allopathic school, and they would have, of course, the medical laws so framed as to make it impossible for you to employ a method of treatment that did not correspond to their views."

In reply to this we beg to say, first, that the public would not for a moment tolerate a law telling the people to adopt and submit themselves to treatment by any medical school, allopathic or otherwise.

The government does not compel the farmer to treat his hog or his cow or his sheep if the farmer does not want to. The farmer is allowed to let the animal die. But he is not allowed to let his animals endanger the lives of the animals of his neighbors. He isn't allowed to let his own conceit or foolish notions endanger the prosperity or health of others.

Similarly, a department of health devoted to the interest of human beings would not compel the adult man or woman to adopt any school of treatment. But that department would do in a national way what the city and state departments of health do now. It would not permit the crack-brained theorist denying the existence of disease, or the careless, indifferent idiot, to endanger the lives of others.

The health department would say to the citizen: "If it is your pleasure to die of consumption you may do so. If you wish to die of small-pox you may do so; that is your business. But you shall not spread consumption among others if we can prevent it, and you shall not spread the small-pox." A department of health would give advice, it would prevent the spreading of disease, and no sane person could object.

In regard to children, we deny the statement of our correspondent that the parent has the right to treat the children medically as he sees fit, and that the choice of medical treatment is the same as the choice of religious doctrine.

A man has the right to teach his children what religion he pleases—that right is guaranteed to him by the Constitution. Later on the child can change if it wishes. Meanwhile the fact that the child is a Mohammedan, an agnostic, an atheist, a Christian Scientist, a Catholic, a Protestant, a Zoroastrian, a Confucian, a Buddhist or what not makes no difference to the general welfare.

Religions, unlike diseases, are not catching. And if a parent chooses to inculcate religious doctrines, truthful or false, that doesn't do any harm to the community.

With disease and with the practice of medicine it is different. The child is entitled to the protection which is offered to it by the progress of science. Our correspondent knows that in China, for instance, the ignorant natives refuse to be treated when they have the plague. They die in heaps, and their children die because they won't let them be treated. Does our correspondent think it wise to permit human beings and children to die in this way?

Our correspondent is aware of the fact that the Indians, when they see a child dying, send for the medicine-man. This medicine-man waves his body back and forth in front of the child, or holds up some ridiculous charm, and sits there placidly while the child dies or gets well. Does our correspondent think that the government would be wise to allow children to die in this fashion if they had diphtheria, small-pox or other diseases that everybody knows require sane, scientific treatment?

Grown people may die if they choose; they may refuse to eat or wear clothing if they want to. But they cannot refuse to give their children the treatment which the most advanced science prescribes.

Many parents have contested in the courts the theory that it is illegal to allow a child to die without care, and such parents have learned to their cost that medicine and religion are two different things.

A national bureau of health would be chiefly advisory, answering questions, spreading information, preventing the spread of contagious diseases. And once established, not even the most crack-brained dreamer or the most selfish exploiter of disease would really advocate discontinuing it.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: San Francisco, August 6-9. Sec., Dr. Charles L. Tisdale, 929 Butler Building.

NEBRASKA: Capitol, Lincoln, August 14-15. Sec., Dr. C. P. Fall, Beatrice.

Louisiana Reciprocates with Mississippi

Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, writes that reciprocal relations have been arranged between Louisiana and Mississippi on the following basis: (1) preliminary requirements of applicants being satisfactory to either board; (2) all applicants for reciprocity must hold diplomas from medical colleges rated in Class A; (3) applicants must have passed examinations before state boards in the states from which they desire to reciprocate, and (4) all applicants must possess certificates of good moral character, also certificates of their connection with state and county medical societies.

Illinois April Report

Dr. James A. Egan, Secretary of the Illinois State Board of Health, reports the written examination held at Chicago, April 30-May 1-4, 1912. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 228, of whom 183 passed, 44 failed, and 1 withdrew. The following colleges were represented:

College	Year Grad.	Total No. Examined.
PASSED		
Bennett Med. College	(1910, 1) (1911, 2) (1912, 17)	20
Chicago College of Med. and Surg.	(1911, 2) (1912, 29)	31
College of Med. and Surg., Physio-Med., Chicago	(1911)	1
Chicago Homeopathic Medical College	(1888)	1
Jenner Medical College	(1905, 1) (1912, 2)	3
Northwestern University Medical, School	(1905, 1) (1910, 1) 1911, 3) (1912, 8)	13
College of Physicians and Surgeons, Chicago	(1906, 1) (1910, 2) (1911, 3) (1912, 46)	52
Rush Medical College	(1897, 1) (1911, 5) (1912, 37)	43
Reliance Medical College	(1910)	1
College of Physicians and Surgeons, Keokuk	(1893)	1
Sioux City College of Medicine	(1906)	1
Kentucky University	(1905)	1
Flint Medical College	(1909)	1
Johns Hopkins University	(1905)	1
College of Physicians and Surgeons, Boston	(1909)	1
University of Michigan, Dept. of Med. and Surg.	(1890)	1
American Medical College, St. Louis	(1911)	1
Washington University, St. Louis	(1912)	1
Syracuse University, College of Medicine	(1884)	1
Columbia University, College of Phys. and Surg.	(1908)	1
Cornell University Medical College	(1909)	1
Medical College of Ohio	(1880)	1
Miami Medical College, Cincinnati	(1893)	1
Hahnemann Med. Coll. and Hosp., Philadelphia	(1899)	1
Trinity University, Toronto, Ontario	(1897)	1
Royal College of Phys. and Surg., Ireland	(1911)	1
National University, Ireland	(1911)	1
FAILED		
Bennett Medical College	(1911, 3) (1912, 2)	5
Chicago College of Medicine and Surgery	(1910, 1) (1911, 6) (1912, 8)	15
Hahnemann Medical College and Hospital, Chicago	(1893, 1) (1910, 1) (1911, 1) (1912, 1)	4
Illinois Medical College	(1910)	1
Jenner Medical College	(1911)	1
National Medical University, Chicago	(1909)	1
Northwestern University Medical School	(1911)	1
College of Physicians and Surgeons, Chicago	(1910, 1) (1911, 4) (1912, 3)	8
Reliance Medical College	(1911)	2
Hospital College of Med., Louisville	(1904, 1) (1908, 1)	2
St. Louis College of Physicians and Surgeons	(1908)	1
Tufts College Medical School	(1903)	1
Meharry Medical College	(1907)	1
University of Modena, Italy	(1903)	1

Book Notices

SEX HYGIENE FOR THE MALE AND WHAT TO SAY TO THE BOY. By G. Frank Lydston, M.D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology, Medical Department, State University of Illinois. Cloth. Price, $2.25. Pp. 304, with 24 illustrations. Chicago: Riverton Press, 1912.

This book is intended to acquaint the teacher, parent, boy in high school and youth in college with sex hygiene, (1) by showing the close relation between general hygiene and sex hygiene; (2) by outlining a system of physical training, and muscle-control and building; (3) by a description of the various diseases, venereal and non-venereal, to which the sex organs of the male are subject. In the final chapter entitled, "A Word to Teachers and Parents, and What to Say to the Boy," are given forty-five short paragraphs, which really summarize the entire contents of the book. This chapter has been reprinted in pamphlet form and is available for general distribution.

As is to be expected, this treatise contains nothing medical that is new to medical men, but states in clear and non-scientific terms the enormous danger that awaits any boy or man who abuses or misuses his sexual organs. The time-honored "wild oats" story, in a very forceful chapter, is shown as absolutely false which ends with the following sentence, "The crop is garnered with the sickle of regret and threshed with the flail of disease and pain."

The advice and suggestions given as regards ordinary hygiene and sex hygiene are rational and sound. The descriptions of anatomy, physiology and pathology of disease are scientifically correct, and the seriousness of the venereal diseases and their complications and sequelæ are all pointed out and emphasized. The fact that the only sure preventive of venereal disease is sexual continence is brought out and emphasized; it is also shown that practically all prostitutes are infected with venereal disease and that liquor increases the susceptibility to infection. The physician who examines prostitutes and certifies to their cleanliness and freedom from disease comes in for some characteristic sarcasm. Dr. Lydston condemns the reporting of venereal disease to the health department.

Some of the hygienic reforms advocated in the book are: (1) routine circumcision; (2) a medical examination as a necessary preliminary to marriage; (3) the giving of lectures in the public schools by medical men and women on the subject of sex hygiene and venereal diseases; and (4) the giving of special clinics for laymen, in which actual cases of venereal diseases can be shown. The dangers of intimacies between boys and the teaching of bad habits to children by servants are warned against. The dance-hall evil is explained and the intimate relation between it, alcoholism and sexual disease is thoroughly discussed. Another strong point in the book is the plea for universal instruction in swimming, boxing, fencing and wrestling, as these exercises tend to develop the eye, the judgment of distance and muscle, besides using up the energy that might otherwise be expended in a perverse sexual way.

From an educational point of view the work is excellent. There is neither hypocrisy on the one hand nor coarseness, vulgarity or suggestiveness on the other, in the statements of facts and the description of conditions. This work may be read by an adolescent or adult with no shock to the sensibilities, but to the great mental and physical betterment in most instances.

PELLAGRA. An American Problem. By George M. Niles, M.D., Professor of Gastro-Enterology and Therapeutics, Atlanta School of Medicine. Cloth. Price, $3 net. Pp. 253, with illustrations. Philadelphia: W. B. Saunders Company, 1912.

The discovery of the wide prevalence of pellagra in the United States, particularly in the South, has in the past few years greatly augmented the literature on this subject. The disease has been subjected to an intensive clinical study and much research has been undertaken with reference to the etiology. It cannot be said, however, that the latter feature has been greatly advanced. Up to the present the many

etiologies remain merely theories. The symptomatology is better understood and at present most cases, perhaps, are diagnosed, although cases in different localities present a widely varying symptomatology. Except for the skin manifestations the pathology presents no very definite picture. In the treatment considerable progress has been made and when the cases come under medical management early the prognosis is often good. All of these points are brought out in the work of Niles in a clear and entertaining manner. Much of the history of pellagra is given in the book; its connection in Europe with the introduction of maize and the various other theories as to its etiology are given impartial discussion. Without stating a decided opinion, the author leans toward the corn theory of Lombroso. The symptomatology of the varying types or cases of the disease is described carefully. In the treatment Niles offers a definite line of procedure which in his hands has had a measurable degree of success. Some research work in the way of producing the disease experimentally in animals by means of corn products is detailed. Nothing definite, however, was arrived at by these experiments. The book, while hardly in the nature of a text-book on pellagra, is an interesting and valuable monograph on the subject.

A PRELIMINARY STUDY OF KENTUCKY LOCALITIES IN WHICH PELLAGRA IS PREVALENT. Having Reference to the Condition of the Corn Crop and to the Possible Presence of an Insect or Other Agent by which the Disease Spreads. Bulletin 159. Kentucky Agricultural Experiment Station of the State University. Paper. Pp. 72, with 65 illustrations.

The Sambon theory of the transmission of pellagra has aroused a considerable interest in entomologic conditions in the localities where the disease is prevalent. While the *Simulium reptans*, the species of sand-fly incriminated by Sambon, has not been found in this country except in Greenland, it has been thought possible that related species may be the conveyors of the disease in this country. As a contribution to our knowledge of these insects, Bulletin No. 159 is written giving the results of the author's individual researches. No attempt is made to draw final conclusions. Indeed, the absence of any knowledge of a microbic or protozoic cause of the disease permits us at present only to surmise that a simulium may be the conveyor of the unknown germ. The work of Dr. Garman, while so technical as to be of little immediate practical value to medical men, must be hailed as an essential preliminary to the final solution of an important question in etiology. The thorough and competent work of such investigators, supported by the state and national authorities, goes far to compensate for the lack of a special medical department. The survey resulted in the discovery of a specimen of the yellow-fever mosquito *Stegomyia fasciata*, in addition to three varieties of simulium for which Garman was looking especially. The author describes two more, *S. reptans* and the turkey gnat, which, he thinks, will probably be found there. Altogether over forty species of insects were collected by him. He also notes some mollusks, fishes and amphibia. The pamphlet is well illustrated by a large number of drawings and photographs.

THE CAUSATION AND PREVENTION OF TYPHOID FEVER. With Special Reference to Conditions Observed in Yakima County, Washington. By L. L. Lumsden. Paper. Pp. 53, with illustrations. Public Health and Marine-Hospital Service: Public Health Bulletin No. 51. 1912.

This pamphlet consists of two parts: a general discussion of the cause and prevention of typhoid fever, which is given in such an elementary way as to be of value to the layman as well as to the physician, and a study of an epidemic of typhoid fever in Yakima County, Washington, with recommendations for the prevention of such epidemics. The author concludes that the endemic prevalence of typhoid in North Yakima from 1908 to 1910 was due to the local dissemination of human excreta and to the occasional introduction of exogenous infection. The special outbreak in 1911 was caused by the infection of the city watermains, the water being pumped in from a mill-pond. A reduction of the prevalence (by 90 per cent.) was secured by the carrying out of reasonable measures directed especially to the correction of insanitary local conditions. The author concludes, therefore, that the high prevalence of typhoid in Yakima County is amenable to very marked reduction through the application of measures for the correction of insanitary local conditions. There are two appendixes added, one dealing with the construction of a sanitary privy, and the other with measures to prevent infection from the bedside of typhoid fever patients. The pamphlet is well illustrated by drawings and photographs of sanitary and insanitary privies and by a number of maps and charts.

This bulletin, which is one of a series of public health bulletins, is of great interest, not only to those living in the region where the epidemic, which gave rise to the investigation occurred, but to sanitarians and physicians in general who are confronted with the typhoid problem in rural districts.

WHO'S WHO IN SCIENCE (INTERNATIONAL). Edited by H. H. Stephenson. Cloth. Price, $2. Pp. 335. New York: Macmillan Company, 1912.

This volume contains data with regard to living scientists all over the world. The editor says that those branches of knowledge which lie on the border-line between science and the humanities, between the objective and the subjective, have not been included. The sciences here represented are agriculture and forestry, anatomy, anthropology, astronomy and meteorology, botany, chemistry, engineering, geology, mineralogy, mathematics, medicine, surgery, etc., pathology and bacteriology, physics, physiology and zoology. The book contains a list of the world's universities with sites, dates of foundation and names of heads, registrars and senior professors; condensed biographies arranged alphabetically, giving, for each man, positions held, residence, date of birth, education and principal publication and achievements; and, at the end, a classified index of names arranged under the sciences and subdivided by countries.

Some omissions noted on a hasty glance through the volume seem to indicate that distinguished men of science who hold no positions in institutions of learning have failed to be recorded, in many instances at least. Among medical men in particular, the selection of names has not been guided by broad judgment, as is shown by an examination of the list of American physicians and surgeons. Inventors also seem to have been neglected. Apparently, if the book had been prepared in the days of George Stephenson or Robert Fulton or James Hargreaves, none of them would have been included; they held no academic positions. Morse, the inventor of the telegraph, might have slipped in; he was professor of fine arts in the University of the City of New York! The plan of the work seems a good one except that, as noted, it includes chiefly (or solely?) men in academic positions.

TEXT-BOOK OF OPHTHALMOLOGY. In the form of Clinical Lectures. By Dr. Paul Roemer, Professor of Ophthalmology at Greifswald. Translated by Dr. Matthias Lanckton Foster. Volume I. Cloth. Price, $2.50. Pp. 275, with 186 illustrations. New York: Rebman Company, 1912.

THE JOURNAL (Sept. 16, 1911, p. 1004) contained a review of the German edition of this admirable text-book and we are glad to read the first instalment (about one-third) of its translation into the English language. On the whole what was said of the original work holds true of the American edition; indeed, in some respects there is a distinct improvement noticeable in Dr. Foster's adaptation of the German text, especially in his avoidance of a number of errors that seem to have eluded the eye of the author. Although the illustrations are of the same inferior order of the original edition, the subject-matter is so excellent that one may easily overlook minor defects, especially as the binding, print and paper are excellent.

THE INTERNATIONAL MEDICAL ANNUAL. A Year-Book of Treatment and Practitioner's Index. Thirtieth Year. Cloth. Price, $3.50. Pp. 654, with illustrations. New York: E. B. Treat & Co., 1912.

The thirtieth edition of the International Medical Annual is a substantial book of 654 pages dealing with the literature of the past year. The arrangement, as is well known, is practically alphabetical, which facilitates reference although it necessitates a separation of closely related topics. The limited space given to each topic necessitates a very consid-

erable amount of condensation, yet the reader will find in it the essential advances in medicine during the year 1911. It is illustrated by a number of excellent plates, several of them colored. To a large extent the articles appear to be reviews and not a mere collection of abstracts. This factor especially will recommend itself to the practicing physician who desires not only a bibliography, but a clear estimate of the treatments proposed.

Medicolegal

United States Supreme Court on Constitutionality of Medical Practice Act—States May Regulate Practice of Healing Art—Medical Schools—Single Transactions—Established Business—Osteopaths

(*Ira W. Collins vs. State of Texas* (U. S.), 32 S. C. Rep. 286)

The Supreme Court of the United States affirms a judgment of the Court of Criminal Appeals of Texas affirming a judgment of a county court refusing relief by habeas corpus to a person in custody on the charge of practicing osteopathy without a license, who is now called the plaintiff in error. The Supreme Court says that he was held on an information charging him with practicing medicine for money by treating a named patient for hay fever by osteopathy, without having registered his authority, as required by the Texas statute of 1907, chapter 123. He denied the constitutionality of the act.

The statute establishes a board of medical examiners, and requires "all legal practitioners of medicine in this state, who, practicing under the provisions of previous laws, or under diplomas of a reputable and legal college of medicine, have not already received license," to prove their diplomas, etc., and applicants not licensed must pass an examination, conditioned, among other things, on their being graduates of "*bona fide* reputable medical schools," "whose entrance requirements and courses of instruction are as high as those adopted by the better class of medical schools of the United States, whose course of instruction shall embrace not less than four terms of five months each." Section 13 of the statute declares that "any person shall be regarded as practicing medicine within the meaning of this act . . . who shall treat or offer to treat any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method, or to effect cures thereof, and charge therefor, directly or indirectly, money or other compensation." By another section, nothing in the act is to be construed to discriminate against any particular system, and it is not to apply to nurses, masseurs, etc.

The facts charged against the plaintiff in error were admitted. It also was admitted that before the passage of the statute he had spent $5,000 in fitting up his place, and was deriving from his calling a net income of at least the same sum. He held a diploma from the chartered American School of Osteopathy, Kirksville, Mo., after a full two years' course of study there, but it did not appear that he presented this diploma to the board of medical examiners, or attempted to secure either a verification license or license in any form. The board, in passing on qualifications, does not examine in therapeutics or materia medica, which are not mentioned in the statute. On these facts the Supreme Court is of opinion that the plaintiff in error failed to show that the statute inflicts any wrong on him, contrary to the Fourteenth Amendment of the Constitution of the United States. If he has not suffered, the court is not called on to speculate on other cases, or to decide whether the followers of Christian Science or other people might, in some event, have cause to complain.

The court is far from agreeing with the plaintiff in error that the definition of practicing medicine in Section 13 is arbitrary or irrational, but it would be immaterial if it were, as its only object is to explain who fall within the purview of the act. That it does, and, of course, this court follows the Texas court in its decision that the plaintiff in error is included. It is true that he does not administer drugs, but he practices what at least purports to be the healing art. The state constitutionally may prescribe conditions to such practice, considered by it to be necessary or useful to secure competence in those who follow it. We should presume, until the Texas courts say otherwise, that the reference to the diploma of a reputable and legal college of medicine, and the confining of examinations to graduates of reputable medical schools, use the words "medicine" and "medical" with the same broad sense as Section 13, and that the diploma of the plaintiff in error would not be rejected merely because it came from a school of osteopathy. In short, the statute says that if you want to do what it calls practicing medicine, you must have gone to a reputable school in that kind of practice. Whatever may be the osteopathic dislike of medicines, neither the school nor the plaintiff in error suffers a constitutional wrong if his place of tuition is called a medical school by the act for the purpose of showing that it satisfies the statutory requirements. He cannot say that it would not have been regarded as doing so, because he has not tried.

An osteopath professes—the plaintiff in error professes, as this court understands it—to help certain ailments by scientific manipulation affecting the nerve centers. It is intelligible, therefore, that the state should require of him a scientific training. He, like others, must begin by a diagnosis. It is no answer to say that in many instances the diagnosis is easy—that a man knows it when he has a cold or a toothache. For a general practice science is needed. An osteopath undertakes to be something more than a nurse or a masseur, and the difference rests precisely in a claim to greater science, which the state requires him to prove. The same considerations that justify including him justify excluding the lower grades from the law.

Again, it is not an answer to say that the plaintiff in error is prosecuted for a single case. If the legislature may prohibit a general practice for money except on the conditions stated, it may attach the same conditions to a single transaction of a kind not likely to occur otherwise than as an instance of a general practice.

Finally, the law is not made invalid as against the plaintiff in error by the fact that he had an established business when the law was passed.

Society Proceedings

COMING MEETINGS

Am. Acad. of Ophthal. and Oto-Laryngol., Niagara Falls, Aug. 20-22.
Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Electro-Therapeutic Association, Richmond, Va., Sept. 3-5.
American Roentgen Ray Society, Niagara Falls, Sept. 11-14.
Medical Society of the Missouri Valley, Council Bluffs, Ia., Sept. 5-6.
Minnesota State Medical Association, Duluth, Aug. 14-15.
Nevada State Medical Association, Reno, Sept. 10-12.
New Mexico Medical Society, Roswell, Sept. 12-14.
Wyoming State Medical Society, Sheridan, Sept. 17.

AMERICAN ORTHOPEDIC ASSOCIATION

Twenty-Sixth Annual Meeting, held at Atlantic City, N. J., May 30-June 1, 1912

Under the Presidency of DR. V. P. GIBNEY, New York City

Officers Elected

The following officers were elected for the ensuing year: president, Dr. A. R. Shands, Washington, D. C.; vice-presidents, Dr. J. D. Griffith, Kansas City, Mo., and Dr. David Silver, Pittsburgh, Pa.; treasurer, Dr. G. G. Davis, Philadelphia, Pa.; secretary, Dr. Ralph R. Fitch, Rochester, N. Y.

The next meeting will be held in Washington, D. C., May, 1913.

Spontaneous Gangrene and Allied Conditions in Orthopedic Surgery

DR. W. G. STERN, Cleveland: Spontaneous gangrene, Raynaud's disease, erythromelalgia, akrocyanosis and intermittent claudication are allied conditions, and are probably due to

similar causes. Of fourteen cases, only five were seen by the general surgeon, and late in the progress of the disease, after gangrene had set in, for the purpose of amputation. Three of these patients were transferred by the orthopedist to the general surgical service. Ten of the fourteen were referred to the orthopedist early in the progress of the disease, on account of pain and discomfort in the feet and legs on walking, under the impression that the condition was due to flat-foot. Seven patients had some degree of flat-foot, and several had been treated for flat-foot with plates and exercises. One case had been held to be a sarcoma of the tarsus, while another was suspected of being a tuberculosis of the ankle-joint.

DISCUSSION

DR. L. W. ELY, Denver: Many years ago I had a case in an adult, who had lost one foot by amputation for gangrene, beginning above the toe and running to just above the knee. The other leg presented a well-marked case of intermittent claudication. The pulse was absent. It ceased about the middle of the leg. He had a well-marked phlebitis and treatment was without effect. He was put on the flat of his back for six or eight months and his symptoms all disappeared. He still has his leg and foot. Without rest, he would have lost the limb.

DR. H. A. WILSON, Philadelphia: I wonder whether any of the patients gave a history of the onset being a frost bite, with an exaggeration of the condition in the winter and an amelioration in the summer. Patients who apparently had exaggeration of the symptoms in the winter were relieved by applied warmth and complete rest; the circulation recovered, the gangrene disappeared and there was an arrest in the condition, with a slight recurrence the following winter.

DR. C. F. PAINTER, Boston, Mass.: Until I learned to associate with this condition etiologically the presence of various toxic conditions connected with narcotics, I did not understand the etiology very well. There seem to be two points connected with them: the fact that they occur largely in people who are fundamentally of a weak or unstable nervous system, and in those who give a history of having used tobacco or some other toxic material to excess.

Treatment of Scoliosis (Fixed Type) by Plaster, Supplemented by Pneumatic Pressure

DR. JOHN PRENTISS LORD, Omaha, Neb.: In the treatment of exaggerated scoliosis of the fixed type, it has been my experience that frequent forced corrections under plaster have rendered the best net results. The pressure surfaces are greater in casts than in braces, and, therefore, exert a greater corrective force and maintain a maximum of efficiency. To make them more sanitary, they have been fenestrated to the largest possible extent, especially over concavities in the chest. To avoid chest constriction and atrophy of the pectorals, the cast has been cut out extensively to allow of free expansion of the upper chest over the upper lateral concave portion. The breasts of females are made free by ample fenestra. To supplement the efficiency of these casts and to add more pressure over the protruding ribs, use the air bags made from sections of the inner tubes of automobile tires. The valve stem of a bicycle tire is inserted in the edge of the flattened tube. The cut ends of these sections are cemented and vulcanized. Discarded tubes of good quality make admirable pneumatic cushions which are very durable. By these means a follow-up effect is secured.

A Simple Operation for the Relief of Contracture in Certain Cases of Volkmann's Paralysis

DR. LEONARD W. ELY, Denver: This operation was first worked out on a specimen in the laboratory. It was found that a simple division of the tissues between the tendons of the flexor sublimis and the flexor profundus digitorum and the bones in the distal phalanges would release the contraction. In regard to the causation of this condition I think that the experimental work of Lorenz and others has failed to prove the claim that it is the cutting off of the blood-supply that produces Volkmann's paralysis. I think the paralysis is caused by the injury of the nerve that may have been produced at the same time as the bone was injured, and not by the pressure of the splints on the blood-vessels.

DISCUSSION

DR. R. H. SAYRE, New York City: I think Dr. Ely is incorrect in assuming that the experimental work of Lorenz and others has failed to show that cutting off the blood-supply produces this effect; because if you cut off the blood-supply for a number of hours this condition is produced.

DR. G. B. PACKARD, Denver: It has been shown that an elastic bandage does not cause this type of paralysis, but a flaccid paralysis; so in this case the paralysis was due to the splints.

DR. H. P. GALLOWAY, Winnipeg, Canada: I have operated in several cases of ischemic paralysis by lengthening all the flexor tendons in the upper forearm above the wrist. As soon as they were all divided, the different fasciculi being kept together with forceps, it was easy to straighten the fingers. I cannot reconcile this with Dr. Ely's hypothesis.

The Mechanical Treatment of Hip Disease

DR. GEORGE E. PACKARD, Denver: I believe that if sufficient mechanical treatment, in addition to proper hygienic measures, is instituted early in hip disease, a cure will many times take place with motion. Every means should be used in the early stages to effect such a result. Traction, fixation and protection from weight bearing should be persisted in as long as there seems any possibility of obtaining such results. Early weight-bearing should not be allowed, as it favors ankylosis, absorption and enlargement of the acetabulum. If stiffness persists after two years of treatment by traction, fixation and protection, and there seems to be little probability of recovery with motion and there is absolute freedom from sensitiveness, then weight-bearing, with fixation to prevent flexion and adduction, is the treatment of choice. Undoubtedly, ankylosis is to be desired in many cases as the best possible result for future comfort and permanent cure. Therefore, the treatment should not be one of routine, but selected according to the indications in each individual case.

Results in Hip Tuberculosis After Mechanical Treatment (Without Traction) and Hygiene

DR. HENRY LING TAYLOR, New York City: Seven patients treated by Phelps' brace are reported. Five children had their splints removed in the summer of 1910. All but one child had abscesses. They were all early cases and of at least average severity. All the patients are now in good health; and in all the abscesses are healed and the position of the leg is excellent. In none does the shortening exceed 1 inch. Skiagrams show more or less enlargement of the acetabulum, moderate erosion of the head (except in two), and the head in the acetabulum.

Discussion on Papers of Drs. Packard and Taylor

DR. R. W. LOVETT, Boston: We are not sufficiently careful about looking after the muscular atrophy that follows joint injury. More persons have stiff, irritable knees due to that than any other thing. There is also a large element of disuse in this condition. Athletes will not allow their joints to be fixed. They use them with light bandages. Accompanying the muscular atrophy in some cases there is a distinct atrophy of the bone, which is diminished to one-third its normal width. A good many of the effects we see in chronic joint disease are possibly due to bone atrophy.

DR. L. W. ELY, Denver: How can weight-bearing cause a less amount of atrophy of the limb than a treatment that causes function of that limb? Muscular spasm is Nature's method of putting the joint at rest. It cannot cause trauma to the joint. It is motion that causes the pain. Trauma may have a slight causative effect in joint tuberculosis, but hardly in the bone. Where the tuberculosis focus occurs in the bone, the bone is subject to trauma.

DR. H. A. WILSON, Philadelphia: Weight-bearing is not the only method applicable to bony ankylosis, but it gets rid of some of the results of uncarefully applied fixation and confinement in bed. The physical improvement of twenty patients with tuberculosis of the hip, who were in Atlantic City all winter, who never slept in warmth in their room, and with very little fixation, has been phenomenal; and it shows that the emaciation that we see when there is fixation in bed and disuse is not present.

DR. F. H. ALBEE, New York City: Where there has been a tremendous rarefaction of the head of the femur, weight-bearing should be removed and the patient either placed in bed with traction or put into a brace that will prevent weight-bearing, if not produce traction.

DR. VIRGIL P. GIBNEY, New York City: In my later work I have religiously used the plaster spica in all early cases; and the results have been so uniformly good that I have sometimes questioned the case being tuberculous. I have wondered whether it was not an infection of some kind.

DR. CHARLETON WALLACE, New York City: The solution of the problem will be in raising the resistance of the patient. He should be out of doors all the time and get good nourishing food. He should be kept from brain fatigue and brain tire.

DR. G. G. DAVIS, Philadelphia: There are two kinds of spicas. One is the short spica and the other is the long spica. I am opposed to the short spica; and I believe that a long spica, from the waist to the toes, gives fixation and rest, and that the short spica does not. So far as the treatment of the active stage goes, I believe in absolute rest in bed, with as much fixation as one can obtain. The long spicæ should be kept on until the patient can be got out of bed, when a high shoe should be put on the opposite side and crutches used.

DR. B. E. MCKENZIE, Toronto, Canada: I have thought that traction was meant to serve a double purpose; that of keeping the head of the femur in such a position that it will not be brought violently into contact with the acetabulum, and that of preventing deformity. We cure the disease by enabling the resistance from within to throw off the affection. The part where the tuberculous lesion is should be exposed to the light for hours every day, and this treatment continued for months. I believe that no long brace has ever supplied complete fixation for the joint.

DR. C. J. JAGER, New York City: A distinction should be drawn between the short spica and the Lorenz spica. The short spica will not fix the hip; but the Lorenz spica fixes it absolutely.

DR. T. H. MYERS, New York City: The focus is sometimes in the epiphyseal line and sometimes in the acetabulum. In the first case the amount of immobilization needed is very different from what is needed when the findings show that the focus is in the joint itself.

DR. J. E. GOLDTHWAIT, Boston: All of us are agreed that hip disease is a general disease and that local treatment is a question of individual experience. Local treatment is certainly no more than protection. I think bone atrophy does not come from disease, but from disuse.

DR. J. P. LORD, Omaha: When the head of the bone is liable to break down traction is indicated. The amount of traction now used is not adequate to prevent the destructive process and mechanical displacement.

DR. WALLACE BLANCHARD, Chicago: It is friction that does the destructive work in the hip-joint in the majority of cases. Lateral as well as longitudinal movement is necessary for this, and I have advised using both kinds of extension to produce traction in the direction of the neck of the femur.

The Use of Intra-Articular Silk Ligaments in the Paralytic Joints of Poliomyelitis Anterior

DRS. BERNARD BARTOW AND W. W. PLUMMER, Buffalo: During the past year we have employed this procedure in fifty joints. In many of the cases operation has been too recent to be more than suggestive of the improvement that is anticipated. The procedure has been developed to the point that takes it out of the experimental stage. While it is not advocated as an exclusive mode of treatment, it may become so in some cases. There is also necessity for careful protection of the joint after the operation for a prolonged period.

DR. NATHANIEL ALLISON, St. Louis: Artificial ligaments and tendons are more valuable than the older operation for stability, namely, arthrodesis. My method is to imitate the pull of normal tendons by silk cords, inserting these in the bone above and below and running the silk tendon in the sheath of the paralyzed tendon. Eighteen patients with anterior leg paralysis have been operated on, with two failures through the inserted tendons pulling free. Twelve perfect results were obtained and four with marked improvement. Three patients with complete paralysis of the leg muscles have been operated on with a stability of the ankle at right angles to the foot. One patient with hyperextension of the bone, caused by hamstring paralysis, has been operated on by inserting silk cords in the hamstring sheaths and securing them to the femur above and the tibia below; the result here has been a checking of the bone at a little less than a straight angle. In no case has there been infection, nor has the inserted silk caused trouble. The use of one or another silk artificial ligaments or tendons is preferable to arthrodesis in children.

DISCUSSION

DR. PRESCOTT LE BRETON, Buffalo: Three things have impressed me: first, the little reaction that takes place in the tissues from the introduction of the ligaments; second, there are many conditions that could be relieved in this way; third, the importance of protection afterward. The real thing that takes place is the formation of the fibrous tissue along the silk ligaments later. That is what we want, rather than the silk ligaments themselves.

DR. R. W. LOVETT, Boston: I should like to ask Dr. Plummer whether he uses braid or twisted silk, and whether the strands are knotted separately or are all tied in one large knot; also whether in the cases of simple drop-foot the ligament is tied to itself or carried across the foot and fastened in a mattress suture.

DR. W. W. PLUMMER, Buffalo: We have used the Corticelli twisted silk. The knot used in the earlier cases was a square one. In the drop-foot the basket suture goes all the way around and produces a stirrup ligament. There has been no unpleasant reaction; but we have considerable reaction about the joint and thickening of the capsule. Protection should be carried out for a long time.

The Abdomen an Important Factor in Chronic Joint Affections

DR. FRANK E. PECKHAM, Providence: Many joint conditions are due to faulty physiology. Intra-abdominal pelvic pressure is an important factor. Putrefactive processes are due to sluggishness of the intestinal functions. There is a sagging of the intestines, with atonic walls and flabby muscular development. Surgeons are beginning to realize that only a few cases are benefited by so-called short-circuiting, and that the question is a physiologic one. General gymnastics, as in out-of-door sports, are beneficial. Special gymnastics that develop the abdominal muscles are important. Mechanical vibration, properly applied, is a great stimulant to general physiology.

An X-Ray Study of Gastro-Intestinal Findings in Multiple Arthritis

DR. GEORGE R. ELLIOTT, New York City: While the primary etiology of the disease does not lie in the abdomen, yet we are dealing with important factors which tend to keep up a vicious circle. The original infective toxins, in many cases, soon cease to act; but the abdominal conditions, acquired and otherwise, feed the already diseased joints. The physician who does not have a proper examination—*x*-ray and otherwise—neglects his patient. Most of the abdominal intestinal conditions may be remedied.

Some Conditions of the Pathogenesis and Treatment of Toxic Polyarthritis

DR. P. W. NATHAN, New York City: There exists very little definite knowledge of toxic polyarthritis. The general opinion seems to be that there is a definite joint disease as a result of auto-intoxication from the intestinal tract; but in the reports of the cases of undoubted auto-intoxication from this source no mention of joint symptoms is ever made. The conception that a toxic joint condition is the result of intestinal putrefaction, seems to rest on the basis that in a certain percentage of the cases there is indican in the urine. It has been disproved, however, that indican in the urine is of any diagnostic importance. Nor has it been definitely shown that the cases reported as toxic arthritis of intestinal origin have any connection with the intestines. The treatment must be based on general principles and directed toward the general condition. Care in the examination, attention to detail and careful study of the individual cases are necessary if treatment is to be successful.

Etiology of Chronic Arthritis

DR. LEONARD W. ELY, Denver: The cause advanced for this group of diseases is still a matter of debate. As we study the history of the subject, we see the infectious theory gradually growing in strength. I believe that all these diseases are infectious. Every bone and joint disease whose exact cause we know is infectious. It is perhaps better for the present to believe that a number of different organisms may be responsible for these diseases, especially as this agrees with clinical evidence. In many of these cases of chronic joint disease a distinct source of infection has been found, and in some the removal of this source of infection has been followed by an improvement or a cure of the joint disease.

Acute and Chronic Arthritis

DR. MICHAEL HOKE, Atlanta, Ga.: I studied a series of forty-seven cases, extending over fourteen months, without regard to classification. I found, running through the whole series, while they were acute, a profound disturbance of metabolism. As the patients got better, their metabolism became nearer to the normal. As we cut down their protein, the excretion of uric acid arose coincidently with improvement in the patients. An ordinary healthy human being can take care of intestinal putrefaction. The arthritic patient cannot take care of it. It harms him and should always be avoided.

DISCUSSION

DR. JOEL E. GOLDTHWAIT, Boston: It seems to me that we have in the abdomen an explanation of one of the difficulties that the human family has. One of the penalties that we all have to pay for being bipeds, instead of quadrupeds, is a maladjustment of our viscera. It is of no consequence unless it leads to some disturbance. The anatomic type, usually considered normal, has been found to be rather uncommon. Many people have only half of the small intestine. Of course, these patients are not well nourished. The possibility of organisms traveling up this short intestine from the colon and getting to a point where absorption can take place is, naturally, much increased in such persons.

DR. J. L. PORTER, Chicago: In the St. Luke's Hospital at Chicago we had a nurse who suffered with a chronic arthritis of the ankle-joint. We found that she had had severe tonsillitis in previous years, a great many years before this time. After going over the case and not finding any cause for the joint trouble, the tonsils were removed. In the center of the larger of the two there was discovered a little focus of infection. The pathologist made an emulsion of the contents, and injected the ear of a rabbit intravenously with a very little dose of this material. Within a few days the rabbit developed marked enlargement of the wrist joint, which showed chronic articular changes. A professor in Chicago University died with an acute pyogenic infection, which involved all his joints. At the autopsy Dr. Davis secured this infective material. He injected the veins of the ear of a rabbit with this material. The rabbit developed the same type of infection in all its joints. The changes in the two rabbits were identical and in the same location as in the patients from whom the material had come.

DR. F. E. PECKHAM, Providence: There are a very large number of cases due to faulty physiology in the abdominal region somewhere. I think that the time may come when most of these joint diseases, with their different pathologic conditions, will be found to be due to one cause.

Bone Transplantation in the Treatment of Club-Foot, Pseudo-Arthrosis and Pott's Disease

DR. FRED H. ALBEE, New York City: In case of club-foot in older children, where adduction of the front part of the foot predominates, a wedge of bone has been ingrafted into the scaphoid, in several cases with most gratifying results. In several cases of pseudo-arthrosis of long standing, a strip of bone about 5 inches long by one-half by one-third, from the crest of the healthy tibia, has been inlaid into the cortex of the end of each bone fragment and fixed with heavy kangaroo tendon through drill-holes in the recipient bone fragments. A firm union has been secured in each case and in one case in which a Lane plate had previously failed. In thirty-two cases of Pott's disease a prismatic-shaped piece of the tibia has been implanted into the spinous processes of the diseased vertebræ, with most striking results.

DISCUSSION

DR. JOHN B. MURPHY, Chicago: Dr. Albee's treatment is the first ray of light on the management of spondylitis. It is a prophylaxis against deformity. Putting in a piece of bone is easy. You can apply the treatment of transplanting bone from the same individual, having contact of bony surfaces, the first time the child shows stiffness and fixation; and you will have a uniform regeneration of the bone in the transplant. A graft of bone, once transplanted, does not grow in length, but only in circumference. If the periosteum is left on the bone will not spread. The rôle played by the graft is that of supporting the haversian vessels. The graft must be human bone. This treatment is ideal for ununited fractures. Where there is a defect in development these grafts may be used with good effect.

DR. J. T. RUGH, Philadelphia: There are certain fractures of the neck of the femur that refuse to unite. Would the insertion of a piece of this bone tend to bring about bony union?

DR. MURPHY: Yes. I have done this in many cases.

DR. RUGH: In a case of congenital absence of the lower two-thirds of the tibia I substituted the fibula; and it became practically of the same size as the tibia and is keeping pace with its growth.

DR. T. H. MYERS, New York City: Two of Dr. Albee's skiagrams show the diseased bodies separated by considerably more interval than they would have been before he had straightened them. Our old idea was that these would not heal unless the surfaces came together.

DR. J. E. GOLDTHWAIT, Boston: I have seen a case in which both fibulæ were transplanted to take the place of an absent tibia. There is deformity of the foot, but both legs have developed so that the child runs about and plays without difficulty.

DR. H. P. GALLOWAY, Winnipeg, Canada: I am a firm believer in the principle that if you can bring about ankylosis in tuberculous joints you will cure the disease. This is not easy in the sacro-iliac joint. I should like to ask whether the transplantation of a bone graft into the sacro-iliac joint would bring about ankylosis in that joint.

DR. ABRAHAM JACOBI, New York City: I found that my fractures would heal more readily when I fed my patients on phosphorus. My patients with Pott's disease and tuberculous ankles got decidedly better in a shorter time with phosphorus than without it. Tuberculous disease, not only in the lungs, but in the soft parts and in the bones, will do well when systematically treated with arsenic. We should not forget that there are other things besides operations, and that a great deal can be done to strengthen and purify the system for the purpose of making an operation more successful. Arsenic is a semi-specific in tuberculous disease. You will get better results if your patients are in good condition, such as you can bring about by the use of phosphorus and arsenic.

DR. J. B. MURPHY, Chicago: The tendency has been to go entirely away from medication; but we are coming back now to the things that combat tuberculosis in the bone, lung and every other position, the apex of which is represented by arsenic.

AMERICAN THERAPEUTIC SOCIETY

Annual Meeting, held at Montreal, Canada, May 31-June 1, 1912

Election of Officers

The following officers were elected: president, Dr. Noble P. Barnes, Washington, D. C.; vice-presidents, Dr. Howard Van Rensselaer, Albany, N. Y.; Dr. Robert T. Morris, New York; Dr. Francis M. Pottenger, Los Angeles, Cal.; secretary, Dr. Lewis H. Taylor, Washington, D. C.; treasurer, Dr. A. Ernest Gallaut, New York; editor of Transactions, Dr. P. Brynberg Porter, New York.

The next annual meeting is to be held at Washington, D. C., in May, 1913.

Advances in Therapeutics

DR. ALEXANDER D. BLACKADER, Montreal: It must be recognized that among the hundreds of drugs in our pharmacopeias and dispensatories the ones that cure, the specific remedies,

may be counted on our fingers—some would even say, on the fingers of one hand. All the others assist only in the relief of symptoms. How dimly have we, up to the present, appreciated the fact that there resides within the animal body a set of potential forces capable, when aroused and stimulated of exercising a highly effective control over almost all forms of disease! No advance in therapeutics has been of greater value to the world than the modern appreciation by physicians, and altogether too slowly by the general public, of the advantages accruing from the breathing of fresh air; of sleeping in it, working in it, and, as far as possible, of living in the open. It is undoubtedly one of the greatest stimulants to the activities of the phagocytes and to the development of the various forms of antibodies which the physician to-day possesses. Doubtless, also, the great value of climatotherapy, of hydrotherapy, of psychotherapy, and possibly also of electrotherapy, depends on a similar stimulation of this wonderful defensive mechanism of Nature. I am, however, by no means willing to be classed as a hopeless pessimist regarding the value of drug therapy. On the contrary, I have a strong belief in the limited value of the great majority of our pharmacopeial drugs when used with a definite knowledge of their action. The outlook in therapeutics has been dark because hitherto therapeutics has been taught as a mere empiricism. The future is bright because in all our best medical schools the students to-day are taught practically, as well as theoretically, the action of each drug. During the past year therapeutics has been greatly encouraged by the success which has attended Ehrlich's persevering investigations into the modifications of therapeutic action by variations in chemical structure. A similar investigation is now being carried on by Flexner, who is endeavoring to elaborate some modification of hexamethylenamin which, while retaining its central formation possessing an effective germicidal action. may develop a specific affinity for and a toxic action on the microorganisms of poliomyelitis. Owing to the growing demand of the profession for new agents, there have been forced on its notice an enormous number of new drugs of whose action we have no knowledge, except the statements of the commercial houses introducing them. I think it is now generally recognized that purely commercial interests have had too much to say during the last few years as to the composition and the nomenclature of many drugs much used at the present by reputable physicians. In the detection of the false and the uncovering of wrong the work done by the Council on Pharmacy and Chemistry of the American Medical Association has been of greatest value.

Some Types of Hyposecretion of the Thyroid

DR. O. T. OSBORNE, New Haven, Conn.: Undoubtedly, many of the patients suffering from hypothyroidism are psychopathic and may improve by mental treatment. The thyroid is peculiarly susceptible to mental stimulation and to mental depression; so that anything that quiets mental excitation will diminish a hypersecretion of the gland, and anything that removes mental excitation will increase a subnormal secretion of the gland. Some instances of disturbed thyroid secretion look like pure hysteria. This gland has a great deal to do with the condition of the blood. When it is subsecreting it must sometimes allow a condition to occur not dissimilar to that of hemophilia; in other words, a very aplastic condition, perhaps with a diminished calcium content. When we recognize the very active part the thyroid takes in the life of the female, it is not to be wondered at that the gland becomes overworked and that it finally hypofunctionates. The conditions for which I think thyroid subsecretion may be responsible are cretinism, some forms of eczema, some forms of asthma, infantile obesity, chlorosis, amenorrhea, some digestive disturbances, some forms of melancholia, adiposis dolorosa, lipomatosis, myxedema, senility, and, perhaps, Raynaud's disease. The stimulants to thyroid secretion are great sorrow; great joy; nervous tension; sexual excitement; genital disturbances, especially uterine; pregnancy; cerebral stimulants such as coffee, tea and alcohol; and such drugs as arsenic, iodids, phosphorus, salicylic acid, pilocarpin and, of course, thyroid extract. Let me urge that, when thyroid is needed, but small doses be used, as it is potent for harm. When given to patients who ought not to receive it, it will make their symptoms worse, and sometimes but a little of it will push a wavering thyroid gland to hypersecretion and Graves' disease.

Cardiac Arhythmias and Their Treatment

DR. T. E. SATTERTHWAITE, New York: There are now recognizable by means of graphic tracings, four distinct varieties of cardiac arhythmias, and these have been classified in accordance with their correspondence with the first four of Gaskell's five physiologic attributes of heart muscle. The first type of arhythmia, the pneumogastric, is a variation within physiolcgic limits, and, as a rule, does not warrant us in sounding a note of alarm. In the extrasystolic variety, of which there are two types, the ventricular and the auricular, there are supernumerary contractions, which are always followed by a pulse period longer than normal. The characteristics of abnormal contractility are strikingly shown in the pulsus alternans, distinguished from extrasystolic arhythmias by the fact that the alternation of large and small beats is continuous. Another variety of abnormal contractility is seen in auricular fibrillation. In affections of conductivity the normal stimulus, starting in the sinus venosus, may be arrested at any one of several points, and the result of this is heart-block. Extrasystolic arhythmias may depend on either neurotic or gastro-intestinal conditions. In the one case sedatives, such as camphor and bromids are useful; in the other, remedies to correct the digestion and obviate auto-intoxication. In auricular fibrillation no remedy is so satisfactory as digitalis; the next most valuable agent is its congener, strophanthus. Acute heart-block may, however, be caused by digitalis; in which case the drug should, of course, be at once discontinued.

SYMPOSIUM ON THE ETIOLOGY AND TREATMENT OF HIGH BLOOD-PRESSURE

The Relation Between High Blood-Pressure and the Adrenals

DR. C. E. D. SAJOUS, Philadelphia: While the adrenal secretion acts on the muscle fibers of the heart and of the arteries in general, it has been found that the brunt of this action is borne by the arterioles. When such action is abnormal, we may have the production of arteriosclerosis. All the main causes usually assigned to arteriosclerosis may be summarized by the one word "intoxication." All but one (alcohol, which has not been studied in this connection) of the morbid conditions known to provoke arteriosclerosis have also been shown to cause overactivity of the adrenals, and the evidence to this effect is further sustained by the fact that Coplin, in an examination of the adrenals of twenty-two cases of arteriosclerosis, found that seventeen were markedly altered; the glands in the other cases being the seat of either tuberculosis or a secondary neoplasm. Again, potassium iodid, our best remedy in arteriosclerosis, has been found to inhibit the secretory activity of the adrenals. Briefly, then, the pathogenic agent, whatever it happens to be, excites these glands (probably through their centers) to such abnormal action as to cause more or less reduction of the caliber of the arterioles from which the vasa vasorum receive their supply. Deficiently nourished through these, the medial and intimal vascular tissues degenerate, forming the familiar sclerotic patches.

High Blood-Pressure Arising from Nervous Strain in Diseases of the Nervous System

DR. EDWARD D. FISHER, New York: In endarteritis of a degenerative type a rather general distribution of arterial disease is found; so that not only are interstitial nephritis and cardiac hypertrophy present, but the nervous system is also involved, as shown by cerebral and spinal symptoms. In patients under 40 there are symptoms peculiar to disorders of the special organs, but no tendency, or only a slight one, to cerebral hemorrhage or epilepsy, as in older persons. In them the blood-pressure may be temporarily high, but is not continuously so, while in patients over 40 there is a constant high tension, subject also to marked increase—which is the danger point indicating the probability of a seizure, apoplectic

or epileptic. High blood-pressure in cerebral tumors, hydrocephalus or compression following trauma may be observed to fall as soon as the skull is opened, or, more surely (though not always), when cerebrospinal fluid escapes on opening the dura. During cerebral operations observation of the blood-pressure is valuable, as rapid fall indicates the need of stimulation or cessation from further operating.

Factors Which Alter Blood-Pressure in Pulmonary Tuberculosis

DR. F. M. POTTENGER, Los Angeles, Cal.: In tuberculosis low blood-pressure is favored by the action of the toxins, the disturbed action of the diaphragm, and, particularly as the disease becomes advanced, by the weakness of the heart muscle and the general wasting. I have of late made a special study of the altered function of the diaphragm and its accompanying splanchnic congestion and relative arterial anemia. High blood-pressure, on the other hand, is favored by the increase in the number of heart-beats, the hypertrophy of the heart and the thickening of the arterial walls. A relatively low pressure is found in tuberculosis, especially in advanced cases.

General Treatment of High Blood-Pressure

DR. SPENCER L. DAWES, Albany: This may be divided into (1) prophylactic, (2) curative, and (3) symptomatic. 1. A regulation of the habit of the individual as to diet, exercise and excretion is the measure indicated. Rational and systematic exercise will do more even than the regulation of the diet to prevent sclerosis of the arteries and its accompanying hypertension, and in addition to this most active business men should have, at least once a year, a sea voyage or a period of complete relaxation in the country. 2. Here we should pay attention first, to the cause, for it must be acknowledged that high pressure is a symptom, rather than a disease. By far the most popular of all drugs used with the idea of cure is iodin in some form, but in employing the iodids, which are usually prescribed, special care must be taken to avoid deranging the digestion. 3. Unfortunately, most of our efforts must be directed toward relief, as the majority of patients do not come to us until a distinct arteriosclerosis is established. Each case must naturally be dealt with according to the special conditions present. In some instances venesection may be attended with excellent results, and in others mercurials, followed by a saline purge. Free diuresis is often of great assistance, and here digitalis and theobromin sodiosalicylate are valuable. Care should always be taken not to lower the blood-pressure to a point where the secretory action of the kidneys is unfavorably affected.

Treatment by the High-Frequency Current

DR. HOWARD VAN RENSSELAER, Albany, N. Y.: From my study and experience I would say that the underlying cause of most cases of high blood-pressure is metabolic, from faulty digestion of food. The hypertension usually precedes renal, cardiac and arteriosclerotic changes. By proper treatment with high-frequency currents (1) the general condition is improved, and especially the metabolic processes, so that less toxins are formed and absorbed; (2) when, by the aid of the sphygmomanometer, hypertension is recognized early, we are able to cure the initial stages of the disease, because we remove the exciting cause; (3) we can prevent the actual development of Bright's disease; (4) when renal or cardiac lesions are already present, we can check the rapid advancement of the pathologic processes and thus prolong life; (5) in the later stages of the disease, when compensation has broken and the heart begun to fail, by lowering the tension we lessen the resistance which the enfeebled heart is obliged to overcome, and so can alleviate some of the symptoms and make the patient more comfortable; (6) by the effect of the current in lowering arterial tension we protect the brittle vessels from the liability, and thus minimize the danger of apoplexy.

Sodium Nitrite in Arterial Hypertension

DR. WILLIAM H. PORTER, New York: Some remedies act directly; others indirectly. Sodium nitrite should be classed as one that acts indirectly, for it in no sense tends to remove directly the causes of hypertension in the vascular system. It is in the pure hypertensions, before profound pathologic changes have occurred in the walls of the vessels, that this remedy is most valuable. It is, in fact, in the management of this class of cases, which is becoming larger day by day, that we have out greatest opportunities to display, to the fullest extent, the value of scientific medication. We know exactly what can be accomplished with sodium nitrite, but the exact modus operandi by which it produces a dilatation of the overtense vascular system is not quite so clear. It is probable, however, that in the presence of water and hydrochloric acid in the stomach it is decomposed, and that its decomposition products NO_2 and NO are disengaged in the form of brown vapors which are irritants and strong oxidizers. These ultimately produce an impression on the centripetal nerve-endings in the gastric mucosa, which impulse is carried to the vasomotor center and by the centrifugal nerves conveyed from the center of the vascular wall; thereby causing the expansion of the vessels. This dilatation is due either to inhibition of the vasoconstrictors or to stimulation of the vasodilators. The slow decomposition of sodium nitrite, as compared with amyl nitrite and nitroglycerin, makes it far more valuable than these when a continuous effect is desired; and its continuous action has been demonstrated both experimentally and clinically. Undue vascular contraction is much more damaging than overexpansion, for overcontraction has been known to cut off the nutritive supply to such an extent as to result in death in perfectly healthy subjects in from ten to fourteen days. Hence, from a purely nutritive standpoint, the greater necessity of modifying this hypertension; for, without an ample and well-distributed nutritive supply, pathologic conditions cannot be removed or physiologic conditions reestablished. For these reasons, sodium nitrite is extremely valuable when employed before the vascular system has become too pathologic to be influenced easily by its power to expand the unduly contracted arterioles. Its failure to accomplish the result desired is usually due to its being employed in unsuitable cases. The dose should be from 1 grain up, at frequent intervals, until the arteries soften. When it is used in the right cases and given continuously and in sufficiently large doses, the effects are all that can be desired. The distressing symptom, dyspnea, which is Nature's method of indicating tissue starvation, is completely relieved, and in a manner which at times is almost magical; while oxidation reduction is greatly augmented, as evidenced by the changes for the better in the catabolic products found in the urine. If at the same time, by other measures, the etiologic factors are removed, and the diet and digestion rendered perfect, the metabolic processes of the body can be, and often are, changed from an absolutely pathologic state to one which is perfectly normal. While from a purely histologic standpoint we may not succeed in effecting a positive cure, from the physiologic one we can. It is the misuse of sodium nitrite, as, for instance, when the arterial system is contracted in connection with an enfeebled cardiac muscle, or when there was engorgement of the general venous system, that has caused so many to doubt its efficacy. Used when and where it can assist Nature, we have no more certain and reliable remedy in our whole materia medica.

Discussion on High Blood-Pressure

DR. O. T. OSBORNE, New Haven, Conn.: The only thing of service in the presence of the phenomena of advancing age, when the thyroid grows less powerful and the suprarenals are more active is iodin. Of the iodids I prefer sodium iodid, as less irritating than the potassium salt, and cannot understand why the latter is so persistently adhered to in this country. Baking has not been mentioned, but I believe it to be one of the best measures at our command.

DR. C. M. D. SAJOUS, Philadelphia: The thyroid and adrenals both secrete less freely in advanced life, but it often happens that the functional degeneration of the thyroid is more rapid. When this is the case the persistent rise of blood-pressure sometimes seen in old age, or even just past middle life, is distinctly attributable to the adrenals.

DR. R. D. RUDOLF, Toronto: Of course, the increased blood-pressure is merely a symptom, not the disease, and in many instances a rise in the pressure is of a compensatory character. I believe that gentle exercise is of material benefit. The first effect of this is to raise the pressure, but afterward there is a gradual falling.

DR. A. E. GALLANT, New York: One remedy has not been mentioned, water. In certain cases I have had good results from keeping the patient in bed for ten days at a time, without food, but imbibing a gallon of water a day.

DR. A. C. CROFTON, Chicago: As the result of experiments on rabbits,* for reducing blood-pressure I am accustomed to giving very small doses of digitalis, which have an action like that of the nitrites. Although iodin is so generally advocated and employed, I have never seen any beneficial results from its use. Neither can I endorse the water treatment, as I am a firm believer in the restriction of liquids in these cases. The restriction of nitrogenous food, especially meats, is also, I think, of great importance.

Value of Enterostomy in Ileus

DR. J. H. TAYLOR, Washington, D. C.: My object is to show the value of enterostomy in certain instances of ileus, as seen in a series of twenty cases occurring in my practice in the last two years. Most of them were postoperative cases. Sixteen were cases of peritonitis due to varying causes, two were incident to toxemia from disease outside the peritoneal cavity, one followed on the third day after a high forceps delivery and post-partum hemorrhage, and one was reflex. Leaving out two fatal cases, which can fairly be excluded, the mortality was 16.6 per cent. The conclusions I have arrived at are: 1. Enterostomy offers an excellent chance in a class of cases formerly always fatal. 2. It should be done before complete bowel paralysis and before the abdominal muscles are stretched beyond their limit of tonicity. 3. The lower ileum should be the region of election for the operation. 4. The opening should not be made in the colon. 5. Old or fat persons and those whose abdominal muscles are weakened from any cause offer an unfavorable prognosis.

Prize of $500 Offered

The Committee on Competitive Therapeutic Research, having reported that no report on a subject of therapeutic research had been received in response to the offer of a prize of $200, and having recommended that the amount of the prize offered should be increased to $300, or more, and that the competition should be thrown open to the profession at large, the Society, on recommendation of the Council, voted to increase the prize to $500 and to open the competition to the medical profession of the United States and Canada.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

California State Journal of Medicine, San Francisco

July, X, No. 7, pp. 275-312

1 Present Status of Nitrous Oxid in Major Surgery. M. Botsford, San Francisco.
2 Choice of an Anesthetic. C. E. Palmer, San Francisco.
3 Mishaps in Treatment. D. W. Montgomery, San Francisco.
4 An Epidemic of Trichinosis. G. H. Runkel, McCloud.
5 County Health Officer as the Local Registrar for Each County in the State. G. E. Tucker, Riverside.
6 Hygienic Laboratory of the State Board of Health. W. A. Sawyer, Berkeley.
7 Diaphragmatic Pleurisy. D. Crosby, Oakland.
8 Antityphoid Vaccination. Major Brooke, U. S. Army.
9 Tuberculids as Observed in Southern California. R. Williams, Los Angeles.
10 Interrelationship Between the Motor and Secretory Functions of the Stomach. R. S. Lavenson, Los Angeles.
11 Case of Orbital Endothelioma. P. A. Jordan, San Jose.
12 Twenty-Eight Cases of Tropical Liver Abscess. R. Smith, Los Angeles.
13 Chronic Arterial Hypertension. R. L. Cunningham, Los Angeles.
14 *Diagnostic Value of Pastia's Sign in Scarlet Fever. G. H. Taubles, San Francisco.
15 Urosepsis. M. Krotoszyner, San Francisco.
16 Interesting Cerebral Case. C. F. Welty, San Francisco.

14. Diagnostic Value of Pastia's Sign in Scarlet Fever.—In Taubles' series of seventy-three cases this sign was present in every case. The sign has been simultaneous with rash in time of appearance and in about 80 per cent. of the cases has lasted from two to three weeks after the rash has disappeared. In all of the cases seen the sign outlasted the rash at least three to six days. In cases definitely not scarlet fever the sign was seen in three cases of hemorrhagic measles, one case of angio-neurotic edema and in one case of dermatitis venenata. The measles cases were typical in every way as to history of exposure, mode of onset and appearance on examination. The strips of the sign were instead of rose red, a deep rusty brown in color and with stippled edges instead of the linear appearance noted in scarlet fever.

The case of angio-neurotic edema as well as the case of poison oak presented no difficulties in the way of diagnosis and here again the sign was not typical in that there was an edema present, and by reason of structural differences, the skin at the folds merely showed pink lines similar to those which can be demonstrated by strongly hyperextending the fingers, whereupon the skin folds appear as bright pink lines against the tense white skin of the rest of the palm and palmar surfaces of the digits. Three cases of erythematous drug eruption, two due to iodin and one due to morphin, failed to show the sign. Two cases of so-called fish rash also did not present the sign. Two other cases of angio-neurotic edema did not have the sign visible.

In fourteen cases of erysipelas the sign was not once seen. Two cases of antitoxin erythema did not show the sign. Two cases of diffuse acute generalized erythema with fever and gastro-intestinal disturbance, but without the usual sore throat or scarlet tongue and no history of contagion were isolated. They did not at any time present the sign and recovered in a few days without any subsequent desquamation. In our experience the sign has served with success in six cases in which the rash was not typical. These cases presented instead of the usual punctiform rash more of the diffuse redness of an erythema scarlatinoides. By virtue of the sign these cases were isolated and proved by their subsequent course that the diagnosis of scarlet fever had been the correct one.

Journal of Biological Chemistry, Baltimore

July, XII, No. 1, pp. 1-162

17 *Extraction of Substance from the Sperm of a Sea-Urchin Which Will Fertilize the Eggs of that Species. T. B. Robertson, San Francisco.
18 *Studies in Bacterial Metabolism. I. A. I. Kendall and C. J. Farmer, Boston.
19 Studies in Bacterial Metabolism. II. A. I. Kendall and C. J. Farmer, Boston.
20 The Refractivity of the Products of the Hydrolysis of Casein and a Rapid Method of Determining the Relative Activity of Trypsin Solutions. T. B. Robertson, San Francisco.
21 Formation of Guanylic Acid from Yeast Nucleic Acid. W. Jones, Baltimore.
22 *Excretion of Iron in the Urine in Pneumonia. E. H. Goodman, Philadelphia.
23 Studies on the Action of Trypsin. E. H. Walters, San Francisco.
24 *Presence of Active Principles in the Thyroid and Adrenals Before and After Birth. F. Fenger, Chicago.
25 *Nature of the So-Called Artificial Globulin. R. B. Gibson, Minneapolis.
26 Inorganic Phosphorus in Plant Substances; an Improved Method of Estimation. R. C. Collison, Wooster, Ohio.
27 *Experimental Studies on Creatin and Creatinin. W. E. Rose, Philadelphia.
28 Feeding Experiments with Fat-Free Food Mixtures. T. B. Osborne and L. B. Mendel, New Haven, Conn.
29 Researches on Purins. C. O. Johns, New Haven, Conn.
30 Phytin and Pyrophosphoric Acid Esters of Inosite. R. T. Anderson, Geneva, N. Y.
31 *Influence of Sodium Tartrate on the Elimination of Certain Urinary Constituents During Phloridzin Diabetes. F. P. Underhill, New Haven, Conn.
32 Picrolonates of the Monoamino Acids. P. A. Levene and D. D. van Slyke, New York.
33 Protein Metabolism from the Standpoint of Blood and Tissue Analysis. O. Folin and W. Denis, Boston.

17. Extraction of a Substance from the Sperm of a Sea-Urchin Which Will Fertilize the Eggs of That Species.—From the spermatozoa of *Strongylocentrotus purpuratus* (carefully freed from sea-water by washing them with isotonic NaCl solution) two substances were extracted by Robertson by

strongly hypotonic salt solutions containing ether which are precipitable by barium. The one is soluble in dilute acid, the other is insoluble in dilute acid but soluable in dilute alkali. Both are precipitated by acetone. The acid-soluble substance acts as a powerful fertilizing, agglutinating and cytolyzing agent on the eggs of *Strongylocentrotus purpuratus*. The alkali-soluble substance appears to be devoid of action. Robertson says that there is strong reason for believing that the fertilizing agent in spermatozoa is identical with the fertilizing agent (oöcytase) in blood-sera.

18. **Studies in Bacterial Metabolism.**—These experiments show the extent, and in a measure, the nature of the sparing action which dextrose exerts for protein in ordinary media for the organisms studied. It is interesting to note that the more pathogenic bacteria exhibit less proteolytic activity measured in terms of ammonia production and alkali formation than the more saphrophytic organisms.

22. **Execretion of Iron in the Urine in Pneumonia.**—A study of Goodman's results makes apparent the distinct curve of urinary iron excretion during the course of pneumonia, there being hyposiduria during the height of the infection, and in every instance a relative hypersiduria (in most cases an absolute hypersiduria) at the crisis or during the first day following.

24. **Active Principles in the Thyroid and Adrenals Before and After Birth.**—Fenger believes that both the thyroid and suprarenals of the fetus take a distinct and active part in the growth and development of the unborn animal.

25. **Nature of So-Called Artificial Globulin.**—Gibson claims that Moll's artificial serum globulin is to be regarded as an intermediate stage in the formation of the alkali metaprotein.

27. **Estimation of Creatin in the Presence of Sugar.**—By the use of phosphoric acid instead of hydrochloric acid, and by allowing the diluted solution to stand for a few minutes before making the readings, Rose says that just as accurate estimations of creatin and creatinin may be made in diabetic as in normal urines.

31. **Sodium Tartrate and Phlorizin Diabetes.**—The observation of Baer and Blum that sodium tartrate subcutaneously injected may greatly diminish the output of nitrogen and dextrose in the urine of phlorizinized dogs has been substantiated by the results of Underhill's investigation on the subject, but he differs from these authors in the interpretation of the phenomena provoked. His experience shows that sodium tartrate subcutaneously administered to phlorizinized rabbits and dogs induces disintegrative changes in the kidney tubuli sufficient to account for the lessened elimination of urinary nitrogen and dextrose, observed by Baer and Blum. Under strictly comparable experimental conditions similar results may be obtained in animals that have not received phlorizin, thus demonstrating that sodium tartrate acts specifically in this direction and that phlorizin probably contributes little or nothing to the detrimental influence under discussion.

Cleveland Medical Journal

June, XI, No. 6, pp. 401-470

34 Paget's Osteitis Deformans. W. B. Laffer, Cleveland.
35 Gustave C. E. Weber as I Knew Him. M. Stamm, Fremont, Ohio.
36 Nasal Headaches. D. A. Prendergast, Cleveland.
37 Menace to the Public by Feeble-Minded Persons Living Outside Institutions. T. Diller, Pittsburgh.
38 Pulmonary Hemorrhage and Its Relation to High Altitude. F. E. Mera and I. J. Biskind, Santa Fé, N. Mex.
39 An Apparently Successful Psychoanalysis. H. H. Drysdale, Cleveland.

United States Naval Medical Bulletin, Washington

July, VI, No. 3, pp. 313-472

40 Leprosy. W. M. Kerr, U. S. Navy.
41 Photographs of Lepers. G. F. Cottle, U. S. Navy.
42 Vision in Relation to Markmanship. E. J. Grow, U. S. Navy.
43 Technic of a Wassermann Test in Which Guinea-Pig Complement Is Not Required; Emery Technic; Noguchi Reagents. E. R. Stitt, U. S. Navy.
44 Some Minor Sanitary Defects in Modern Battleships and Their Correction. F. L. Pleadwell, U. S. Navy.
45 Additional Report of Cases with Unusual Symptoms Caused by Contact with Some Unknown Variety of Jellyfish. E. H. H. Old, U. S. Navy.
46 Effects of High Temperature on the Personnel of the Fire Rooms of Naval Vessels, with Special Reference to Heat Cramps. W. L. Mann, U. S. Navy.
47 Detection of Methyl Alcohol. S. C. Schaffer, U. S. Navy.
48 A Bunk Locker, a Tray and a Bracket-Stool for Use in Sickroom and Wards of Hospital Ships. E. M. Blackwell, U. S. Navy.
49 *Method for Use in Opsonic Index Work and Vaccine Standardixation. R. E. Waver, U. S. Navy.
50 Case of Fish Poisoning in Guam. W. M. Kerr, U. S. Navy.
51 Two Cases of Climatic Bubo. E. W. Phillips, U. S. Navy.
52 Rupture of the Left Kidney; Nephrectomy. A. M. Fauntleroy, U. S. Navy.
53 Abscess of the Liver in a Young Infant. F. E. Sellers, U. S. Navy.
54 Appendectomy on a Hemophiliac. B. F. Jenness, U. S. Navy.

49. **Opsonic Index Work and Vaccine Standardization.**—The following technic for use in determination of opsonic indices has proven satisfactory to Weaver and is easily executed. Glass tubing is drawn into Wright's U tubes as usually made, with the exception that the capillary extension of the bent end is made considerably longer than in the ordinary Wright's tube. The bacterial emulsion is prepared in the usual manner, using normal salt solution containing 1 per cent. sodium citrate, at least 2 or 3 c.c. of the emulsions being made, and placed in a salt cellar or ordinary medicine glass in order that it may be picked up with a bulb pipette or medicine dropper having a capacity of 1 or 2 c.c. A grease pencil mark is made at a point on the bend of the tube. The ear or finger being punctured, blood is collected to this mark. The flow of blood must be free as the capacity of the long capillary tube is quite large. When the blood reaches the point marked withdraw from source and admit a small portion of air. Fill the medicine dropper with the bacterial emulsion and, holding it with the bulb slightly compressed so as to keep a drop of emulsion hanging from the end, fill capillary tube to mark. In a flame, seal the large end, having, in the usual manner, slightly warmed the tube so that, on cooling, the contents will be drawn out of the capillary section. The contents may then be thoroughly mixed by agitation or by rolling the tube. The mixture of blood and emulsion is then jarred and shaken down into the sealed end and the tube placed in the incubator for the required length of time. After incubation, shake or jar the contents into the bend of the tube, cut off the sealed end with a pair of scissors and allow the desired quantity to escape through the capillary end (if it does not flow freely it may be easily started by blowing gently into the other end).

A drop of any size desired may be deposited on a slide and there is no bubbling and frothing which is so difficult to avoid with a bulb capillary pipette. This method has also been found to work most satisfactorily in the standardization of vaccines. Using a Wright's tube with a long capillary end, and admitting first a portion of blood, then air, then a portion of vaccine as described above for the bacterial emulsion, and finally several portions of a 2 per cent. solution of sodium citrate, the end is then sealed. The contents may now be thoroughly mixed and smears for counting prepared as above described.

Southern Medical Journal, Nashville

July, V, No. 6, pp. 365-438

55 The Doctor and the Community. D. T. McCall, Mobile, Ala.
56 Monitor's Address. S. W. Welch.
57 Retardation: Its Causes and Remedies. D. S. Hill, New Orleans.
58 Duplex Uterus. H. P. Cole, Mobile, and I. Kimbell, Jackson, Ala.
59 Cystoscope as an Aid to Diagnosis. J. A. McDonald, Memphis, Tenn.
60 Some Experiences in Operating in Inguinal Hernia. J. Smyth, New Orleans.
61 Edema of the Glottis. A. C. Lewis, Memphis, Tenn.
62 Complications During Cataract Extraction; Report of Cases. T. T. Herron, Jackson, Tenn.
63 Uric Acid and Indican Bearings on Diseases of Eye, Ear, Nose and Throat. J. M. Guthrie, Meridian, Miss.
64 Supracondyloid Fractures of Humerus. I. Cohn, New Orleans.
65 Etiology and Pathology of Anterior Poliomyelitis. E. M. Mason, Birmingham, Ala.
66 Diagnosis of Poliomyelitis. W. G. Somerville, Memphis, Tenn.
67 *Case of Infantile Paralysis with Unusual Features. W. G. Somerville, Memphis, Tenn.
68 Symptoms of Infantile Paralysis. J. E. Seay, Birmingham, Ala.
69 Symptoms of Poliomyelitis. L. Leroy, Memphis, Tenn.
70 Chronic Heart Disease with Some Early Diagnostic Symptoms. J. H. Honan, Bad Nauheim, Germany.
71 Some Interesting Cases of Brain Surgery. J. L. Crook, Jackson, Tenn.

67. Abstracted in THE JOURNAL, Dec. 2, 1911, p. 1940.

New York State Journal of Medicine, New York

July, XII, No. 7, pp. 341-410

72 Non-Surgical Treatment of Exophthalmic Goiter. S. S. Cohen, Philadelphia.
73 Primary Sources of Tuberculous Infection; Their Relation to Eugenics and the Cost of Tuberculosis. S. A. Knopf, New York.
74 Treatment of the Typhoid Carrier. F. M. Meader, Syracuse, N. Y.
75 *Arsenic and Digitalis in Pulmonary Tuberculosis. A. Jacobi, New York.
76 Proper Dosage of Air, Food and Rest in Pulmonary Tuberculosis. L. Brown, Saranac Lake, N. Y.
77 *Clinical Study of Relapse in Typhoid, with an Analysis of Twenty-Five Relapses in Twenty-One Out of 166 Typhoid Cases. H. F. L. Ziegel, New York.
78 *Treatment of Arteriosclerosis by Physiologic Methods. J. M. Swan, Rochester, N. Y.
79 Night Camp in the Treatment of Tuberculosis. H. H. Curtis, New York.
80 *Some Recent Studies in the Pathogenesis of Epilepsy. L. P. Clark.
81 Effect of Salvarsan on the Ear. C. E. Perkins, New York.
82 Id. R. G. Reese, New York.
83 *Significance of a Continuous Gastric Juice in the Fasting Stomach. H. Barclay, New York.
84 *Modern Physical Treatment of Arterial Hypertension. E. C. Titus, New York.
85 Toxic Deliria; Report of Cases. N. A. Pashayan, Schenectady, N. Y.
86 A Large Hemothorax. J. F. Black, White Plains, N. Y.
87 *Dust Fever. F. J. Bowen, Mount Morris, N. Y.

75. **Arsenic and Digitalis in Pulmonary Tuberculosis.**—Jacobi emphasizes that it is a grave mistake to believe that tuberculous patients should be directed to rely solely on air, rest and food, to the exclusion of drugs. Such physical measures do not cure patients with restricted means, or those really poor, anxious and sorrowful. Sanatoria which pride themselves on refusing medicinal aids are not successful. So-called symptomatic drugs, camphor, opiates, etc., are helpful and indispensable. Arsenic should be given for months and years. Jacobi never treats pulmonary tuberculosis without it. He seldom gives it without a small dose of digitalis. He never gives it without a guaiacol salt. His routine has been the carbonate.

77. Abstracted in THE JOURNAL, May 4, 1912, p. 1395.

78. Abstracted in THE JOURNAL, May 11, 1912, p. 1474.

80. **Pathogenesis of Epilepsy.**—Genuine epilepsy, Clark says, seems to be dependent on certain unknown complex heredity factors producing a form of cortical and subcortical instability on which a variety of endogenous toxins may act, causing the disease. The fit is an exhibition of a reflex action of the disease and as such should not be seriously interfered with by sedatives *per se*. The sedative treatment of epilepsy is therefore to be thoroughly discouraged so long as there is hope of bringing the real clinical pathogenesis of the disease under control.

83. Abstracted in THE JOURNAL, May 11, 1912, p. 1474.

84. Abstracted in THE JOURNAL, May 11, 1912, p. 1474.

87. **Dust Fever.**—An industrial disease which Bowen says he has several times encountered but has never seen described, is well known among grain threshers as "dust fever." He found on inquiry that the ailment occurs also among flax hatchelers. As it is caused by the inhalation of dust in excessive quantities, it probably occurs in various occupations supplying this essential etiologic factor. The only cases coming under Bowen's observation, however, have been among threshers, or farm laborers engaged in grain threshing. The sickness begins in the evening or during the night following the day's work in dust. The symptoms are severe; often alarming. There is a pronounced chill and usually vomiting. The face is flushed. The patient may be delirious and with a temperature as high as 104. There is marked congestion of the mucous membrane of the respiratory passages. The picture is not unlike that often presented at the onset of pneumonia in a robust subject. The symptoms moderate during the second and third days. A copious exudation from the nasal and bronchial passages eliminates microscopic quantities of dust.

Bulletin of the Manila Medical Society

May, IV, No. 5, pp. 97-124

88 Reports of Medical Conditions in the Torrid Zone Collected by the College of Medicine and Surgery, University of the Philippines.
89 Statement of Deaths in Zamboanga for Three Years. Page, U. S. Army.
90 Case of Polycoria. R. G. Mills, Seoul, Korea.
91 Observations at the General Hospital, Colombo, Ceylon. A. M. de Silva.

American Journal of Public Health, New York

June, II, No. 6, pp. 399-498

92 Methods of Accounting in the Collection of City Waste. P. M. Hall, Minneapolis.
93 Standard Form for Statistics of Municipal Refuse. S. A. Greeley.
94 Development of a Municipal Laboratory. G. E. Bolling, Brockton, Mass.
95 *Statistics Regarding Increased Number of Throat Infections in Boston, February, 1912. W. P. Coues, Boston.
96 Typhoid in New York City, Together with a Discussion of the Methods Found Serviceable in Studying Its Occurrence. C. F. Bolduan, New York.

95. **Increased Number of Throat Infections in Boston, February, 1912.**—From the clinical examination of seventy-seven persons Coues believes that there is a condition which might be termed dairymen's or milk handler's pharyngitis, incident to the long hours of constant work on the wet floors often covered with ice and milk. It does not seem as if all the scrupulous care and pains taken in the efforts to produce the cleanest possible milk could be unvaryingly successful in an unpasteurized product. It would seem as if direct or nearly direct hand contact with the milk is impossible to avoid in some stage of the preparation. Pasteurization by unit system of small packages (one sealed bottle) seems an ideal method.

Canadian Medical Association Journal, Toronto

July, II, No. 7, pp. 557-652

97 *Does Cholecystenterostomy Divert the Flow of Bile from the Common Duct? E. Archibald, Montreal.
98 *Laboratory Tests in the Diagnosis of General Paresis. C. S. McVicar, G. Bates and G. S. Strathy, Toronto.
99 Bone-Marrow, a Study from the Standpoint of the Clinical Pathologist. O. C. Gruner, Montreal.

97. **Does Cholecystenterostomy Divert the Flow of Bile from the Common Duct?**—Archibald says that cholecystenterostomy in the dog, in the presence of a patent common duct, does not divert the flow of bile from the common duct to any appreciable extent. Cholecystostomy, which does succeed in diverting a portion of the bile from the common duct, is therefore the operation of choice for cases of chronic and subacute pancreatitis.

98. **Laboratory Tests in the Diagnosis of General Paresis.**—In 150 sera and twenty spinal fluids of patients with no history or symptoms of syphilis examined by the author the Wassermann reaction was not present. The fluids were taken from cases of non-infective psychoses, tuberculous and meningococcic meningitis, brain tumors, paralysis agitans, disseminated sclerosis and healthy persons. From these cases the following is deduced: (1) An increased cell count is present in nearly all cases of paresis but may also be found in Korsakow's psychosis, and meningeal conditions of various origins. (2) General paresis without a positive Wassermann reaction in both spinal fluid and blood-serum is rare. (3) Globulin can be detected in the spinal fluid of nearly all paretics. The Noguchi and ammonium sulphate tests are of equal delicacy. (4) A positive Wassermann reaction may be obtained in the spinal fluid of patients who have had syphilis and who cannot yet be diagnosed clinically as cases of general paresis.

Ohio State Medical Journal, Columbus

July 15, VIII, No. 7, pp. 345-406

100 Relation Between Certain Functional and Organic Eye Troubles and Intestinal Auto-Infection or Auto-Intoxication. H. Woods, Baltimore.
101 Acute Dilatation of the Stomach. A. Crotti, Columbus.
102 *Anatomic and Physiologic Effects of Iodin on the Thyroid of Exophthalmic Goiter. D. Marine.
103 *Clinical Evidences of Relation Between Exophthalmic Goiter and Altered Function of the Thyroid. C. F. Hoover, Cleveland.
104 Hematuria, with Case Reports. C. M. Harpster, Toledo.

105 Surgical Lesions of the Stomach and Duodenum. W. D. Haines, Cincinnati.
106 Health Conservative Mastoid Operation. F. A. Leslie, Toledo.

102, 103. Abstracted in THE JOURNAL, June 1, p. 1714.

Boston Medical and Surgical Journal

July 18, CLXVII, No. 3

107 The General Practitioner: An Idealization. F. S. Meara, New York.
108 *Recent Studies in the Pathogenesis of Epilepsy. L. P. Clark, New York.
109 Alcohol as a Drug. W. F. Boos, Boston.
110 Regulation of Midwifery. J. L. Huntington, Boston.
111 *Hyperemic Treatment of Acute Anterior Poliomyelitis. P. McIlhenny, New Orleans.
112 Actinomycosis Treated with Vaccines. R. Kinnicutt, Worcester, and W. J. Mixter, Boston.
113 Three Cases of Pellagra. C. H. Dean, Northampton.

108. Also published in the *New York State Journal of Medicine*, July. See Abstract No. 80.

111. **Hyperemic Treatment of Acute Anterior Poliomyelitis.**—The plan of treatment that McIlhenny began in June, 1906, and has carried out with five cases to date with the most satisfactory results, has demonstrated very forcibly the value of active hyperemia in infantile paralysis, and is as follows: The alimentary canal is thoroughly cleansed, the limb or limbs lightly bandaged with cotton to keep them warm, stimulating liquid diet and strychin in minute doses. Cups are applied intermittently to both sides of the spine, and directly over the posterior processes from the sacrum to the curvical region, for one hour daily, and this continued regularly until muscular soreness has disappeared and voluntary motion in the affected muscles begins to return; the bandages are then removed and massage begun, general diet gradually being allowed, and the cupping continued. If one is able to begin treatment a day or two after the initial attack, McIlhenny says one may look for a diminution of the muscular soreness about the fourth day, and a slight return of voluntary motion about the tenth or twelfth day, depending on the extent of the inflammation when treatment was begun and the amount of hyperemia the patient can bear. As the patient becomes more accustomed to the treatment, the improvement will be more rapid; this treatment should be continued until the muscles have regained their tone.

Archives of Pediatrics, New York

June, XXIX, No. 6, pp. 401-480

114 *Relation of the American Pediatric Society to the Reduction of Mortality in Infancy and Childhood. W. L. Carr, New York.
115 The Agents Causing Measles and Scarlet Fever. W. H. Park, New York.
116 Inclusion Bodies in Scarlet Fever Blood as a Means of Differential Diagnosis. M. Nicoll, New York.
117 Non-Residential System of Care for Crippled Children. D. C. McMurtrie, New York.
118 Requisite Standards for Raw Material in the Successful Substitute Feeding of Infants. H. L. Coit, Newark, N. J.
119 Care of Premature Infants. R. Durham, Brooklyn.

114. Abstracted in THE JOURNAL, June 29, p. 2046.

New York Medical Journal

July 20, XCVI, No. 3, pp. 101-156

120 *Tincture of Iodin the Best Surgical Disinfectant. F. T. Woodbury, Fort Screven, Ga.
121 The Latest in Skiagraphy. J. Rudis-Jicinsky, Cedar Rapids, Iowa.
122 Anemic Habit. H. Brooks, New York.
123 *Discovery of Pneumococcus in the Feces; Rôle of the Intestine in the Symptomatology and Treatment of Acute Lobar-pneumonia. A. A. Rutz, New York.
124 Use of Spinal Fluid in the Treatment of Chronic Neurosyphilides. W. Browning and W. Lintz, Brooklyn.
125 Hypertrophied Thymus and Status Lymphaticus. J. H. Taylor.
126 Garbage Disposal. T. M. Koon, Grand Rapids, Mich.
127 Syphilitic Facial Paralysis. C. O. Files, Portland, Me.

120. **Tincture of Iodin the Best Surgical Disinfectant.**—Woodbury has used the U. S. P. tincture on the tonsils for acute and chronic tonsillitis; in the parturient uterus and on extensive lacerations of the perineum; in the cavity following the evacuation of an amebic liver abscess, on the intestine, the ovary, the bladder and stomach; in the gall-bladder knee-joint, fistula-in-ano and tuberculous osteitis; on compound comminuted fractures from crushing and gun-shot wounds, on depressed compound fractures of the skull and spine, on amputations, on corneal ulcers, and in various ophthalmic operations; and on his own hands as a disinfectant before operating. A solution of one teaspoonful of the tincture to a quart of normal salt solution made with pure sodium chlorid has been used as a wet dressing to suppurating wounds, burns and gangrene from frost bite; as a bladder irrigation in acute cystitis, as a vaginal douche, a gastric lavage, a urethral injection, an injection into the spinal canal in a case of epidemic cerebrospinal meningitis, a nasal spray, a gargle, a collyrium, and as a cleansing solution for flushing out the abdominal cavity after suppuration, and for washing out tuberculous bone sinuses. It makes a good rinsing solution for the surgeon's hands during operations.

Woodbury says he has yet to see his first case of iodism from the use of the drug, although on one occasion a nervous patient with a duodenal ulcer was receiving gastric lavage and retained a quart of this solution, representing a teaspoonful of the tincture or four c.c., the maximum safe dose according to J. V. Shoemaker being 0.3 c.c., and failed to feel any symptoms save a sense of fulness. As regards the erythema and dermatitis, it is interesting to note that a case of acute catarrhal eczema of face and scalp, due to Mrs. Potter's walnut juice hair dye, yielded to the use of the iodin ointment reduced one-third strength by petrolatum.

123. **Pneumococcus in the Feces.**—From clinical observations and bacteriological examinations, Rutz contends that there are living and active pneumococci in the feces in acute lobar pneumonia. Tympanites is a constant and important symptom in the disease. The intestine is the special organ of excretion of the toxins. Routine injections from the onset of the disease, together with other accessory measures intended to reduce the toxemia and tympanites, materially influence the course and lower the mortality of the disease.

Virginia Medical Semi-Monthly, Richmond

July 12, XVII, No. 7, pp. 157-184

128 Thoracotomy Under Intratracheal Insufflation Anesthesia. H. H. Kerr, Washington, D. C.
129 Some Phases in the Management of Pulmonary Tuberculosis. W. E. Jennings, Danville, Va.
130 Arterial Hypertension. H. P. Parker, Washington, D. C.
131 Prevention of Typhoid in the Military Service. F. P. Reynolds, U. S. Army.
132 Treatment of the Verumontanum and Prostatic Utricle. W. F. Cole, Greensboro, N. C.
133 Importance of a Thorough Examination and an Early Diagnosis in Diseases of the Anus and Rectum. J. A. McVeigh, Detroit.

Medical Record, New York

July 20, LXXXII, No. 3, pp. 93-138

134 Case of Still's Disease. V. P. Gibney, New York.
135 *De Keating-Hart Method of Thermo-Radiotherapy. W. S. Bainbridge, New York.
136 *Twelve Cases of Mental Disease Treated with Salvarsan, with Special Reference to Blood-Pressure During Injection. C. R. McKinniss, Norristown, Pa.
137 Local Anesthetics in the Upper Respiratory Tract, Including the Adrenalin Preparations. W. Freudenthal, New York.
138 Mental Hygiene Movement. W. L. Russell, White Plains, N. Y.
139 Large Incision and the Reason for It. P. A. Perkins, Memphis, Tenn.

135. **De Keating-Hart Method of Thermo-Radiotherapy.**—Thermoradiotherapy alone or in conjunction with fulguration, according to the requirements of the individual case, is being tested at the New York Skin and Cancer Hospital by Bainbridge. He is not ready yet even to express an opinion concerning its merits, further than to say that he would not be testing it if it did not hold out a modicum of hope of at least ameliorating suffering. Later the cases treated by means of thermoradiotherapy, along with those treated by fulguration, will be reported in detail.

136. **Mental Disease Treated with Salvarsan.**—McKinniss has treated twelve patients and given fifteen injections of salvarsan, and in every case mercury, either by mouth or inunction, has been used as an adjuvant. In only three was it necessary to cut down on the vein to insert the needle and only two required a general anesthetic. All the patients were kept in bed for two to six days after injection. The intravenous administration of salvarsan in these cases proved to be a simple matter with no serious complications. There was very

little change in the blood-pressure even when 195 c.c. was injected. Two of the patients whose psychoses were thought to be due to syphilis of the brain, were much improved by treatment; while two cases of paresis showed some temporary improvement. McKinniss doubts very much if paresis will be benefited by salvarsan. There was nothing in his experience to show the advantage of salvarsan over mercury in the treatment of syphilis.

Journal of Abnormal Psychology, Boston

June-July, VII, No. 2, pp. 89-160

140 Critique of Impure Reason. F. L. Wells, Waverley, Mass.
141 Evolution of Sleep and Hypnosis. I. H. Coriat, Boston.
142 Treatment of Writer's Cramp and Other Occupational Neuroses. T. A. Williams, Washington, D. C.
143 Poetry and Dreams. F. C. Prescottt, New York.

American Journal of Diseases of Children, Chicago

July, IV, No. 1, pp. 1-63

144 *Leukocytic "Inclusion Bodies," with Special Reference to Scarlet Fever. J. A. Kolmer, Philadelphia.
145 *Clinical Significance of Abnormal Respiration and Deglutition Click or Fremitus; the Pneumonic-Respiration-Pause-Cycle. L. Ott, Philadelphia.
146 Relationship Between the Infection in the Child and Clinical Tuberculosis in the Adult. F. M. Pottenger, Monrovia, Cal.
147 Recent Advances in Our Knowledge of Measles. J. F. Anderson and J. Goldberger.
148 Diagnostic Value of the Cutaneous Tuberculin Test of V. Pirquet. F. L. Wachenheim, New York.
149 Apparatus for Collecting Infants' Blood for the Wassermann Reaction. K. D. Blackfan, St. Louis.
150 *Tetanus as a Complication of Burns. C. Newberger, Chicago.
151 An Unusual Lesion of the Right Crus in an Infant of 4 Months. F. J. Farnell and H. W. Burnett, Providence.
152 Standardization of Blood-Pressure Readings by Means of an Automatic Device for Indicating Systolic and Diastolic Pressures in Children. B. R. Hoobler, New York.
153 Tuberculosis and the Mesenteric Lymph-Nodes in Infants and Young Children; Its Effects on Absorption. F. B. Talbot, Boston.

144. Leukocytic "Inclusion Bodies" with Special Reference to Scarlet Fever.—Kolmer concludes that "inclusion bodies" are composed of a plastic, probably spongioplastin, and are related to the presence of streptococci. Furthermore, they are present in the polymorphonuclear leukocytes of 94 per cent. of scarlet fever patients during the first three days after the onset of the disease. After that they diminish in frequency and are generally absent after the ninth day. They are to be found in 42 per cent. of diphtheria cases during the first three days of the disease; after this time they are but seldom found. "Inclusion bodies" are found not only in scarlet fever, but in other streptococcus infections. The diagnostic value of these "bodies" is necessarily limited. In serum sickness with a scarlatiniform rash their absence excludes scarlet fever with a fair degree of accuracy. Their presence in this condition, however, may not be due to scarlet fever but to the primary attack of diphtheria. They have, therefore, a negative value. An examination of the blood for these "bodies," however, is very simple and possesses value in aiding a differential diagnosis between scarlet fever, rötheln, measles and gastro-intestinal rashes.

145. Clinical Significance of Abnormal Respiration and Deglutition Click or Fremitus.—Ott's experience leads him to believe that in cases of children of lowered vitality from disease other than lung troubles, manifesting cerebral symptoms, regularity of respirations negatives organic brain disease. This rule, he says, can also be applied to the pulse.

150. Tetanus as a Complication of Burns.—These two cases, reported by Newberger, are noteworthy because of their coincidence, similarity in manner of occurrence, course and result. In each instance, the symptoms of tetanus set in on the eighth day after the burn, and the complication proved fatal about twenty-six hours after its appearance.

Albany Medical Annals

July, XXXIII, No. 7, pp. 377-438

154 Diagnosis of Diseases of the Urinary Tract by the Combined Use of the Cystoscope and the *x*-Ray. E. M. Stanton, Schenectady.
155 Anatomy of the Intestines. J. D. Craig, Albany.
156 Symptoms and Diagnosis of Diseases of the Intestines. T. F. Doescher, Albany.
157 Constipation; Its Treatment. A. MacFarlane, Albany.
158 Surgery of the Intestine. A. H. Traver, Albany.
159 Anatomy of the Liver. H. E. Lomax, Albany.

Kentucky Medical Journal, Bowling Green

July 1, X, No. 13, pp. 547-600

160 Longevity—the Wisdom of Age. T. J. Townsend, Owensboro.
161 Iritis as Seen and Treated by the Country Practitioner. J. F. Dunn, Arlington.
162 Abortion. M. A. Lenton, Lookout.
163 Rheumatism. T. C. Nichols, Morgan.
164 Relative Duty of the Teacher. C. E. Dudley, Earlington.
165 Ileocolitis. A. P. Botts, Glasgow.
166 Open Treatment of Recent Fractures. B. F. Van Meter, Lexington.
167 Toxic Insanities. M. Board, Louisville.
168 Eclampsia. E. Wilson, Pineville.
169 Alcoholism. T. T. Gibson.
170 Uncinariasis. B. E. Giannini, Straight Creek.
171 Prophylaxis of Specific Diseases by Legislation. T. L. Lampkin, Bardwell.
172 Puerperal Sepsis. W. B. Oldham, New Castle.
173 The Puerperal State. J. J. Rodman, Owensboro.
174 Simple Refraction for the General Practitioner. G. C. Hall, Louisville.
175 *Proprietaries vs. Official Drugs, or U. S. P. and N. F. Preparations vs. Nostrums and Proprietaries. S. H. Winsted, Paducah.
176 Diet. C. H. Todd, Owensboro.
177 Biologic Therapeutics in Pyorrhea Alveolaris; Autogenic Method. J. H. Wood, Lexington.
178 Infantile Diarrhea. R. N. Fillatrean, Knottsville.

175. Proprietaries vs. Official Drugs or, U. S. P. and N. F. Preparations vs. Nostrums and Proprietaries.—The author of this paper is a druggist. He says that there is much self-medication practiced among the laity to-day and that the doctors and druggists are both to share alike in this lamentable condition of affairs. For example: A physician writes a prescription for a bottle of some proprietary remedy, with usual directions. It is a short name. The patient remembers it, since in this day, a great percentage of the laity are proud to familiarize themselves with the terms applied to diseases and medicines. The patient chucks the prescription into the discard and sallies forth to the druggist, asks for a bottle of the proprietary and then takes it according to the directions. It is only natural to assume that the patient, especially the discerning one, will tell his friends and neighbors of his experience and recommend the purchase of a bottle of the same medicine, explaining that Doctor So-and-So prescribed it for such and such a malady. There is no wonder, he continues, that the unthinking doctor rates the druggist as a merchant of average intellect, when medical colleges give their students lectures in pharmacy for only eight weeks, two lessons each week, and after giving them these sixteen lectures, the young doctor launches his career in practice. As to proprietaries, physicians are never furnished with a complete formula. If they were, there is no moral or legal assurance that this formula is always adhered to. It is subject to change without notice. There is no standard set down by authorities. You think you get results, but to save you, you cannot tell what produces them.

American Journal of Surgery, New York

July, XXVI, No. 7, pp. 257-288

179 Injuries of the Pancreas. H. Fischer, New York.
180 Sparteine Sulphate a True Heart Tonic, a Reliable Diuretic in Two-Grain Doses. G. E. Pettey, Memphis, Tenn.
181 Nitrous Oxid Gas and Oxygen Anesthesia. C. U. Collins, Peoria, Ill.
182 Primary Tuberculosis of Mesenteric Lmyph-Nodes. C. Schram, New York.
183 Indications for and Technic of Abdominal Cesarean Section, and Analysis of 100 Cases. R. McPherson, New York.
184 Cesarean Section for Albuminuria. F. T. B. Fest, Las Vegas, N. Mex.
185 General Peritonitis Following Spontaneous Rupture of a Pyosalpinx. J. A. McGlinn, Philadelphia.
186 *Unusual Result of Truss Wearing. W. C. Cramp, New York.

186. Unusual Result of Truss Wearing.—Cramp's patient was wearing an old-fashioned, uncovered steel truss, which had a wooden pad. The truss, anteriorly, had penetrated the tissues, making a deep, clean cut wound, extending from one anterior superior spine to the other, in which it was buried. The wound involved the skin and superficial fascia, and, to varying degrees, the aponeurosis, in some places exposing the rectus muscle. The pad itself occupied a position on the left side behind the pubic bone, having cut through the rectus muscle with its sheath. The peritoneum had not been opened, having been pushed aside. With some difficulty the pad was extricated and then the wound was inspected. The latter was

smooth, no bleeding being anywhere present, the pressure having evidently been exerted gradually for a considerable period of time to bring about this unusual result. On admission the patient was stuporous and the abdomen was moderately distended; he appeared as if in a typhoid state, with no other lesions on the body except the one described. The patient died the day after admission without a definite diagnosis having been made, and without any further information referable to his previous history having been obtained.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

June 29, CLXXXII, No. 26, pp. 1737-1802

1 Pathology of Immunity. L. S. Dudgeon.
2 *Some Moot Points in the Pathology and Clinical History of Pneumonia. P. Kidd.
3 *Relationship of the Lungs and Genital Organs of Tuberculous Women. H. V. Bardeleben.
4 *Comparison Between Fleming's Modification and the Wassermann Test. R. Donald.
5 *Disappearance of a Skin Carcinoma under Local Application of Adrenin. L. C. P. Ritchie.

July 6, CLXXXIII, No. 1, pp. 1-66

6 Pathology of Immunity. L. S. Dudgeon.
7 *Vascular Lesion in Some Cases of Middle Meningeal Hemorrhage. F. W. Jones.
8 *Case of Angina Abdominis. W. K. Hunter.
9 Ophthalmology of General Practice. M. L. Hepburn.
10 The Etiology of Vaccina and on the Cultivation of the Microbe of Variola. W. J. Simpson.
11 *Examination of Diphtheria Specimens. C. Ponder.
12 Removal of an Intrathoracic Thyroid Tumor. C. B. Lockwood and W. D. Harmer.
13 *The So-called X Bodies. A. Balfour.
14 Ultraviolet Light in the Treatment of Alopecia. J. D. Harris.
15 An Unusual Case of Prolonged Fever Presenting Acute Hepatic Changes. G. Lawrence.

2. Some Moot Points in the Pathology and Clinical History of Pneumonia.—A review of the facts at present available, Kidd says, justifies the statement that, with few exceptions, lobar pneumonia may be regarded as pneumococcal. Moreover, it is clear that our conception of the rôle of the pneumococcus in pulmonary disorders needs to be enlarged, and the pneumococcal group must include various anomalous pleuropulmonary affections, among which must be placed the pulmonary congestions of French authors—"maladie de Woillez," pleuro-pulmonary congestion of Potain, and most instances of splenopneumonia. The varying powers of resistance of the individual may be the chief factor which determines the clinical form assumed by the infection, as suggested by Rendu. At the same time, an attenuated virulence of the germ may play its part too. A combination of the two factors in varying proportions would at least provide a plausible explanation of much that would otherwise be obscure in the clinical history of the various forms of pneumonia.

3. Relationship of the Lungs and Genital Organs of Tuberculous Women.—According to Bardeleben, G. Tb. (genital tuberculosis), as a rule, arises from L. Tb. (lung tuberculosis). On the other hand, clinical experience teaches that the prognosis of L. Tb. becomes much worse with the complication of G. Tb. Thus, G. Tb. is usually combined with severe L. Tb. in dissected cases, while an early removal of the G. Tb., by means of an operation, often makes it possible to cure a newly kindled L. Tb. In pregnancy the placenta or the placenta uterina is often the cardinal point of this action and reaction: (a) It often offers a harbor to tuberculosis bacilli circulating through the blood, from which at every opportunity, especially at the separation of the placenta, the bacilli can be again mobilized (childbed). (b) And therefore, the greater the chances may be of this happening in cases of active, manifest L. Tb., the more injurious are the effects of the pregnancy (90 per cent.), whereas the slighter the chances are of bacilli circulating in the blood the more seldom does the L. Tb. become worse (15 per cent.).

In the same manner is proved the agreement of the results of anatomic research with regard to the placenta and therapeutic interventions. (a) Artificial abortion produces really good results only in those cases in which tuberculosis bacilli are practically never found in the placenta (simple catarrh of the lungs till the fourth month of pregnancy, indicatio primi gradus). It produces, on the other hand, unsatisfactory results in cases in which altogether 70 to 80 per cent. placental tb. is to be found (simple affection of the lungs with strongly developed placenta after the fourth month of pregnancy, or more extensive or intensive L. Tb., also in early months of pregnancy, indicatio secundi gradus). (b) The results are for indicatio s. g., just as good as for indicatio p. g., if, instead of merely removing the embryo, the simultaneous excision of the placenta uterina is made. One is led back to the same conclusions by the clinical observations, termed and described as local puerperal and post-puerperal injuries, which likewise disappear with indicatio s. g., after the excision of the placenta. The ovaries have no share in the aggravation. On the contrary, their extirpation according to indicatio p. g. makes the results eight to ten times worse than a mere artificial abortion in similar cases. The extirpation of the whole uterus, according to indicatio s. g., also produces much better results than a simple emptying, but at the same time brings with it some disadvantages, for which reason the total excision of the placenta uterina is much more effective.

4. Comparison Between Fleming's Modification and the Wassermann Test.—The reagents and the technic were carefully conformed by Donald to the directions given by the author of the modification. Compared with the Wassermann test, the modification, using active serum, was very unsatisfactory. The hemolytic system was found precarious, and, even when the controls were hemolyzed, the results were often indefinite or were failures to indicate proved syphilis. In all 186 sera were tested, in two series. In Series A, of 126 sera, thirty-four sera—i. e., 27 per cent.—failed through deficiency of amboceptor or of complement. Of the 126 sera, eighty-two were controlled by the Wassermann test done with human heart antigen. Of these, some six appeared incompletely positive by the modification, though negative by the Wassermann test. The sixty cases in Series B were all controlled by the Wassermann test with Sach's antigen and also by a fully proved micro-Wassermann test. Some thirty-seven sera—i. e., 62 per cent.—were conceded to agree with the Wassermann test; but even of these as many as sixteen failed to completely hemolyze the controls. Through complete lack of hemolytic substances eleven sera—i. e., 18 per cent.—failed to respond to the modification. One serum, from a case of continued pyrexia, was incompletely positive to the modification, though negative to the Wassermann test. As many as eleven sera (18 per cent.) were negative to the modification, though positive to the Wassermann test. Ten out of the eleven were proved syphilitics.

5. Disappearance of Skin Carcinoma under Local Application of Epinephrin.—A man 61 years of age had a recurrent carcinoma on the right cheek on a level with the lobe of the ear, measuring about 3 cm. by 2.5 cm. in area, the whole of it projecting above the skin surface about 1.2 cm. The entire surface of the tumor was ulcerated, of a dark red color, and bleeding readily. No palpable enlargement of neighboring glands was detected. At the patient's first appearance potassium iodid (15 grains thrice daily) was prescribed. A portion of the edge of the tumor was excised for microscopic diagnosis and parts of this were diagnosed independently by Dr. T. Shennan in the pathologic department of the infirmary and by Ritchie as being found to be squamous-celled carcinoma. It showed a higher cellular epitheliomatous growth, continuous apparently with some remnants of surface epithelium; fairly marked cell-nest formation; not much connective tissue, but considerable areas of inflammatory infiltration. The administration of the potassium iodid had been followed in the two weeks of its use by a slight contraction in the projecting part of the tumor. It was discontinued when the patient was treated by exposures to the *x*-rays for about a week. *X*-rays and radium failed to give any improvement.

Then Ritchie thought it might be possible to assist the penetration of the rays by the use of epinephrin, applied with the object of rendering anemic for the time being the tissues acted on, following the principle used in the application of

the Finsen light. A solution (1 in 1,000) of the active principle of the suprarenal was employed, and the method Ritchie adopted was either to paint it freely over the tumor surface or to inject a few drops of it into the tumor a few minutes prior to the application of the radium. It was found that these injections were followed by a tendency to edematous swelling of the tissues, lasting perhaps some days, and they were given on only four occasions. The use of the epinephrin was commenced on February 3, and continued regularly for three weeks. From the time of its commencement a distinct change for the better was noted, the ulcerated area steadily though slowly diminishing in size. It occurred to Ritchie, then, that possibly the epinephrin might have some beneficial action apart from assisting the penetration of the radium rays, and accordingly a wet dressing of lint soaked in the solution was applied each day. When the epinephrin was stopped, the radium being continued, there was shown a tendency to relapse; and healing was comparatively most rapid when the epinephrin was again used, the radium being discontinued. Fully six years have now passed since the disappearance of the carcinoma without there being the least indication of recurrence.

7. **Vascular Lesion in Middle Meningeal Hemorrhage.**—It is held by Jones that the anatomic condition of the vascular channels of the dura mater is, as a rule, not appreciated, and that an attentive examination of these channels at post-mortem inquiries held on these cases is very desirable. From a purely anatomical point of view there is great probability that, in cases not caused by excessive violence, the sinus is far more likely to be injured than the artery. In those cases—especially common in children—in which the violence is trivial, and no fracture is caused, the cerebral compression and ensuing death are due to the development of a hematoma beneath the vascular dura mater strictly comparable to the well-known hematoma developed beneath the vascular pericranium. In the twelve bleeding points yielded by three fatal cases which Jones examined in serial sections, the blood had invariably escaped from a laceration of the venous sinus, and in no instance could an arterial lesion be found. From the published accounts of the bleeding encountered at operations undertaken for the relief of symptoms Jones says it would seem that in the majority of such cases the blood was issuing from a ruptured venous sinus rather than from the artery. In the cases examined there is evidence that following on the initial wound of the sinus wall venous blood is extravasated between the dura mater and the bone, and continuance of the bleeding causes a continuance of the stripping of the membrane from the bone with the development of an accumulating laminated extradural clot. Probably only in rare cases—and especially those in which excessive violence has produced linear or depressed fractures—is the middle meningeal artery actually wounded. Dangerous, or difficultly controlled hemorrhage is not the rule at operations undertaken for the relief of this condition; that in children, especially, cranial injury, however trivial, should be regarded as the possible causation of a dangerous, and possibly fatal, dural hematoma, and that operation for evacuation of the clot and relief of pressure symptoms should always be undertaken regardless of subsequent hemorrhage, which, being usually venous, is easily brought under control.

8. **Case of Angina Abdominis.**—The explanation of angina abdominis as being due to an ischemia of one or other of the abdominal viscera does not seem to Hunter to be an entirely satisfactory one, even, he says, if we accept the theory that angina pectoris is due to an ischemia of the heart muscle. And if we favor Sir Clifford Allbutt's contention that, in a large proportion of cases, it is caused by a painful distention of an aorta which is the seat of an inflammatory lesion, the ischemic theory for angina abdominis would seem to fall to the ground.

11. **Examination of Diphtheria Specimens.**—The details of Ponder's method are as follows: A film is made on a cover-glass and fixed in the usual way. The stain has the following composition: Toluidin blue (Grubler), 0.02 gm.; glacial acetic acid, 1.0 c.c.; absolute alcohol, 2.0 c.c.; distilled water to 100.0 c.c. A small quantity of the fluid having this composition is taken up with a platinum loop and dabbed and spread on the film; the cover-slip is then turned over and mounted as a "hanging-drop" preparation, and it is now ready for immediate examination with the one-twelfth objective in oil. This toluidin hanging drop method is said to differentiate *B. diphtheria* from the other organisms in the same film more clearly than any other method, because while giving a double stain—blue bacilli with red granules—it shows the minute structure of all organisms very distinctly, owing to the way in which the stain is taken up and the optical influence of the fluid in which it is examined. It has a special value in demonstrating the organism in a direct smear without preliminary cultivation, as by this means, in a large proportion of acute cases of the disease, a much earlier diagnosis may be made. It also demonstrates the organisms of Vincent's angina if present. It is extraordinarily simple and rapidly carried out, so that in a laboratory where a large number of specimens require to be examined a great saving of time results. As a corollary to the last two points, it follows that any practitioner who can examine films of sputum for the tubercle bacillus may himself make an immediate diagnosis in a large number of instances without having recourse to the outside aid of a bacteriological laboratory or to the use of all the apparatus incidental to the making of cultures.

13. **The So-Called X Bodies.**—Balfour confirms opinion as to the true nature of these bodies, viz., that they are in reality of the nature of artefacts and are probably more common in old slides that have been kept for some time in the tropics.

British Medical Journal, London

June 29, No. 2687, pp. 1469-1520

16 Prurigo, Pruriginous Eczema and Lichenification. M. Morris.
17 Certain Forms of Fever of Obscure Origin in Infancy and Childhood. C. P. Lapage.
18 Study of an Epidemic of Measles. A. E. Tait.
19 *Aneurysm of the Superior Mesenteric Artery, with Rupture. A. H. Gifford.
20 Electro-Cardiography and its Importance in the Clinical Examination of Heart Affections. T. Lewis.

July 6, No. 2688, pp. 1-52

21 Puerperal Infection. J. F. Jordan.
22 Etiology of Torsion of the Testis. R. W. Murray.
23 Acute Epididymitis Produced by Muscular Strain. J. W. G. Grant.
24 Sleeping-Sickness. A. Balfour.
25 Necessity for the Use of Color Names in a Test for Color Blindness. F. W. Edridge-Green.

19. **Aneurysm of the Superior Mesenteric Artery, with Rupture.**—The interesting points of Gifford's case were the facts: 1. That the aneurysm must have been one occurring in the superior mesenteric artery in its course behind the pancreas, remnants of the arterial wall found lying flat on the posterior wall of the cavity. 2. That the gradual dilatation of the large aneurysmal cavity had exercised a traction on the aorta itself, so that a fusiform aneurysm was formed. 3. That there was a rotation of the aorta, in that the opening of the celiac axis artery and what must have been the opening of the superior mesenteric artery originally, were found on the right side of the aortic aneurysm. 4. That there must have been a gradual and persistent dissection in the upward direction to the lower surface of the liver where the rupture eventually took place, as is evidenced by the thickening and induration of the walls.

Journal of Tropical Medicine and Hygiene, London

June 15, XV, No. 12, pp. 177-192

26 Meteorology of Malarit. M. D. O'Connell.
27 Case of Bacillary Dysentery, Type Y, in a Child Aged 6 Months. J. C. Graham.

July 1, No. 13, pp. 193-208

28 Insufficiency of the Posterior Nucleus as a Specific Distinction in Trypanosoma Rhodesiense. C. M. Wenyon.
29 A Supposed Peculiarity in the Structure of the Leishmania from Skin Lesions in South America. C. M. Wenyon.

Bulletin of the Naval Medical Association of Japan, Tokyo

May, No. 1, pp. 1-6

30 *Preventive Inoculation of the Combined Vaccin of Typhoid and Paratyphoid Bacilli. T. Kazeshima.
31 *Ionic Treatment. G. Suzuki.
32 *Case of Cancer of the Jejunum. I. Nishi.
33 So-Called Krukenberg's Ovarian Tumor. T. Takamiya.

34 Two Cases of Amebic Dysentery. T. Takamiya.
35 How to Test Cow's Milk. T. Tsuzuki.
36 Method of Localizing Foreign Bodies in the Human Body by *X*-ray. S. Yano.

30. **Preventive Inoculation by the Combined Vaccine of Typhoid and Paratyphoid Bacilli.**—Kabeshima calls attention to the highly favorable effect on the prophylaxis of inoculation by typhoid and paratyphoid vaccine. After pointing out the definite relation between the prevalence of these diseases and the extent of inoculation in the Japanese navy, based on close observation of cases admitted to naval hospitals during the last three years, he lays emphasis on the fact that the number of cases occurring among the inoculated is eight times as large as typhoid fever patients, and ten times as great among paratyphoid A fever patients, as among the inoculated. Moreover, the death-rate of the former is three times that of the latter in the case of typhoid fever patients, though no marked difference is observable among those suffering from paratyphoid A fever. In order to obviate the trouble, and the consequent suffering to the patient, of performing three separate inoculations for typhoid and the two kinds of paratyphoid fever, Kabeshima attempted an inoculation with vaccine made from a combination of the three kinds of bacilli. By preliminary experiments on animals he ascertained the degree of immunity against the individual bacteria by this method of inoculation, after which he proceeded to test it on human beings, more than 300 men being so inoculated. He was convinced by the experiment that a comparatively large dose of the bacteria contained in the vaccine does not to any marked degree influence the reaction accompanying the inoculation, and that 15 to 20 c.c. of the serum drawn from twenty inoculated persons protect a mouse against three times the lethal dose of each bacillus. To this extent then he advocates the reasonableness and advisability of inoculating with the combined vaccine.

31. **Ionic Treatment.**—After briefly referring to the history, significance and extent of the application of ionic treatment, Suzuki goes on to represent by tables in detail the results of such treatment with salicylic *ion*, which he applied in cases of acute and chronic rheumatism and sciatica admitted to the Tokyo Municipality Charity Hospital in the course of one year. He then proceeds to a consideration of the question whether by this method of treatment the *ion* would be introduced into the tissue, as suspected, and if so, what would be the relation between the amount so absorbed and that introduced by internal administration, and arrives at the following conclusions: 1. When an aqueous solution of sodium salicylate is applied to the skin and an electric current is introduced, the salicylic acid penetrates the tissues of the body. 2. The amount of salicylic acid absorbed by this method is small compared with that introduced by internal administration. 3. The salicylic acid so absorbed begins very soon to appear in the urine, within fifteen minutes or so after the dose; it reaches its maximum in two or three hours, gradually decreases after four hours, and the amount discharged almost disappears after seven hours. 4. After ionic treatment with salicylic acid, for a certain time the urine increases in quantity and frequent micturition occurs. 5. The ionic medication of the sodium salicylate has on the whole a favorable effect on articular and muscular rheumatism and sciatica, especially in case of the latter. 6. The ionic medication of the sodium salicylate has the advantage of avoiding such disagreeable effects as interference with digestion, which often occurs after internal administration. 7. It is probable that the favorable effect of ionic medication is due not only to its medicinal properties but to the electric current itself. 8. The ionic treatment has the further advantage of causing the medicine to act directly on the part affected, instead of taking a circuitous route.

32. **Cancer of the Jejunum.**—Nishi cites a case of cancer of the jejunum, a form of tumor which rarely affects this part of the intestine. The patient, a seaman 33 years of age, had been affected with jaundice since August, 1911, and was very anemic. He was admitted to Kure Naval Hospital on October 18, 1911, when, on palpation, a tumor the size of a small fist and easily movable by change of posture, was observed to the right and upwards of the umbilicus. It gradually increased in size and became fixed. Various investigations, however, failed to confirm the diagnosis. On January 26, 1912, the tumor was removed by laparotomy, together with a loop of the jejunum 25 cm. in length; and entero-anastomosis was performed between the open ends of the intestine. The wound healed up, leaving a small fistula in the abdominal wall. By microscopic examination the tumor was proved to be a cylindric carcinoma originating in the jejunum.

Edinburgh Medical Journal

July, N. S. IX, No. 1, pp. 1-96

37 Ataxia: A Symptom. J. J. G. Brown.
38 Trauma as a Factor in Disease. A. James.
39 An Experience of Three Cases of Pubiotomy. J. L. Lackie.
40 Changes in the Thyroid Gland under Thyroid Feeding. A. D. Fordyce.

Annales de Médecine et Chirurgie Infantiles, Paris

June 1, XVI, No. 11, pp. 321-352

41 Diagnosis of Tuberculosis in Infants. (Diagnostic de la tuberculose chez les nourrissons.) V. Hutinel and L. Tixier.
42 Gurgling Sound in the Pleura of a Tuberculous Child. (Bruit de glou-glou pleural chez un enfant de 8 ans.) G. Variot and A. Morancé.
43 Radiotherapy. (La lumière en thérapeutique et en hygiène.) F. de Courmelles.
44 *Subcutaneous Injections of Oxygen in Treatment of Pulmonary Tuberculosis. (Traitement de la tuberculose pulmonaire par les injections hypodermiques de gaz oxygène.) R. Bayeux.

44. **Treatment of Pulmonary Tuberculosis by Subcutaneous Injection of Oxygen.**—Bayeux' report was presented at the recent international tuberculosis congress, and describes his experience with subcutaneous injections of oxygen in thirty-six cases. The results were very encouraging, and he thinks that this method should rank as a valuable adjuvant in the treatment of tuberculosis. It might be useful even in prophylaxis. The method was in use 136 years ago and its harmlessness and vital effects and the absorption of the oxygen by the tissues were early established but the method soon fell into disrepute for some reason. Bayeux applied it sixteen months ago to relieve dyspnea, and he found to his surprise that the tuberculous symptoms in his patients at the same time displayed a marked change for the better. He kept up the injections, giving about twenty in the course of three months. His patients showed such relief and benefit that he urges others to adopt this method of hypodermic oxygenation, which has, he says, both a theoretical and practical basis in tuberculosis, as this is preeminently "the lack-of-air disease."

Archives des Maladies de l'App. Digestif, Paris

May, VI, No. 5, pp. 241-300

45 Cholesterin. (La cholestérine. Son rôle en physiologie et en pathologie.) G. Linossier.
46 Case of Adenomatous Polyposis Generalized Throughout the Intestines. Devic and Bussy.

Archives des Maladies du Cœur, Etc., Paris

July, V, No. 7, pp. 433-496

47 Paroxysmal Tachycardia with Partial Heart Block. (Tachycardie paroxystique en dome d'origine supra-ventriculaire et sans contraction de l'oreillette. Sa dégradation allorythmique par block partiel. Ses rapports avec l'arythmie complète.) L. Gallavardin and L. Croisier.
48 Aleukemia, Granulomatosis and Involvement of the Blood-Producing Apparatus in Various Acute and Chronic Diseases. (Revue critique sur la pseudo-leucémie.) J. Rieux.
49 Differential Characters of the Heart Valves. (Note sur les caractères différentiels des valvules cardiaques.) R. Argaud.

Bulletin de l'Académie de Médecine, Paris

June 11, LXXVI, No. 24, pp. 423-466

50 Experimental Study of Chagas' Trypanosomiasis. (Etude expérimentale de la trypanosomose américaine de C. Chagas.) R. Blanchard.
51 Epidemics in France, 1910, and Necessity for Compulsory Notification of Epidemics. E. Mosny.

June 18, No. 25, pp. 467-480

52 Tissues Living Outside of the Organism. (Résultats nouveaux du Dr. A. Carrel relatifs à la vie manifeste permanente des tissus séparés de l'organisme.) S. Pozzi.

Journal d'Urologie Médicale et Chirurgicale, Paris

March, I, No. 3

53 Colon Bacillus Septicemic Pyelonephritis During Pregnancy; Two Cases. (Pyélonéphrite gravidique par septicémie colibacillaire.) F. Widal and R. Bénard.

54 Renal Tuberculosis in Children. (Tuberculose rénale chez l'enfant.) P. Vignard and L. Thévenot.
55 Diversion of Urine in Treatment of Tuberculosis of Kidney and Bladder; Two Cases. (Exclusion de la vessie dans la tuberculose réno-vésicale.) A. Boeckel.
56 Congenital Hydronephrosis from Stenosis of the Mouth of the Ureter. (Dilatation kystique intra-vésicale de l'extrémité inférieure de l'uretère.) R. Rendu.
57 Radioscopic Diagnosis in Urology. (Radiodiagnostique en urologie.) G. Maingot.

Presse Médicale, Paris

June 26, XX, No. 52, pp. 549-556

58 Infantilism the Result of Insufficiency of the Interstitial Gland of the Testicle. (L'infantilisme et l'insuffisance de la secrétion interne du testicule.) A. Souques.
59 The Ligament Between the Pterygoid Muscles in Relation to the Inferior Maxillary Nerve. (L'aponévrose interptérygoidienne et ses rapports avec le nerf maxillaire inférieur.) H. Rouvière.

Revue de Chirurgie, Paris

June, XXXII, No. 6, pp. 866-1034

60 *Technic for Exposure of Radial Nerve. (Découverte du nerf radial au bras.) A. Schwartz and G. Küss.
61 *Suprasternal Adenophlegmon. Soubeyran and Desmonts.
62 *Operations on the Hypophysis Cerebri. (Chirurgie de l'hypophyse.) R. Toupet.
63 *Extra-Uterine Pregnancy. (Etude statistique sur la grossesse extra-utérine.) M. Baculescu.

60. **Exposure of Radial Nerve.**—Schwartz and Küss found the usual mode of access to the nerve not practicable in a certain case of paralysis after fracture, and they worked out on the cadaver a special technic for access from the rear of the arm which seems to have a number of advantages. Their illustrations demonstrate this, showing the ample exposure without injury of the muscle fibers, merely pushing to one side the tendon of the long triceps. They report application of the technic in two cases.

61. **Suprasternal Phlegmons.**—A case of adenophlegmon in a girl of 10 is reported. The phlegmon had developed in the carotid region after an attack of influenza, and the left clavicle had become spontaneously dislocated. Eight similar cases are summarized from the literature. In all rapid healing followed evacuation of the pus by a median incision at the lowest point for draining.

62. **Surgery of the Hypophysis.**—Toupet's thesis in 1911 was on this subject, being based on twenty-four operative cases he had compiled. Progress has been so rapid since then that he finds he has to retract some of his statements. He now has a record of fifty-six cases; Eiselsberg alone has contributed twelve and Hirsch fourteen. Seven of the patients seem to have been permanently cured, the interval since the operation being over two and three years in three cases. Every tumor in the hypophysis that can be reached from the front should be removed as the only chance of saving the patient. If the tumor does not protrude into the sinus and is not accessible from the front, but is causing symptoms from the pressure on the brain, an operation through the temporal region might be tried although it offers little chance for success. It may be wiser in such cases merely to open a flap as a safety valve. Unless the sella turcica is shown by radiography to be distinctly larger toward the sphenoidal sinus, the chances are that the tumor has developed principally on the side toward the brain, and in this case no operation can do much good. The most favorable cases are those in which the floor of the sella is worn through while the quadrilateral plate is intact. When the latter is destroyed, the prospects for any intervention are bad, even when the tumor bulges into the sinus.

63. **Extra-Uterine Pregnancy.**—Baculescu concludes from analysis of the experiences last year at the Necker hospital in fifty-six cases that operative treatment should be the rule when an extra-uterine pregnancy is discovered. Expectant treatment merely paves the way for serious complications.

Revue de Médecine, Paris

June, XXXII, No. 6, pp. 417-504

64 Symptoms in Diabetic Coma Due to Lack of Fluids. (Le syndrome de déshydratation aigue dans le coma diabétique.) A. Chauffard and H. Rendu.
65 *Mental and Motor Disturbances with Heart Disease. (Troubles psychiques, hystéro-épileptiques chez une cardiaque.) F. Mouisset and J. Gaté.
66 Latent Meningeal Reaction in Secondary Syphilis. (Recherches sur les meningopathies syphilitiques secondaires cliniquement latentes.) E. Jeanselme and P. Chevallier. Commenced in No. 5. To be continued.
67 *Toxic Action of Organ Extracts: Tachyphylaxis. (Action toxique des extraits organiques: Tachyphylaxie.) Cesa-Bianchi.

65. **Psychic Disturbances in Heart Disease.**—Mouisset and Gaté report a case of chronic valvular lesion, both mitral and tricuspid, the mitral stenosis predominating, with a long period of uncontrollable progressive asystole, complicated finally by pericarditis and mediastinal pleurisy. The patient was under observation for two and a half years and during the last year there was marked psychic disturbance coinciding with the onset of the pleurisy. She uttered inarticulate cries and incoherent words, laughed or cried violently, frequently laughing when in severe pain, and executed involuntary rhythmic automatic movements, but she never lost consciousness and always knew what had happened. She knew she was talking incoherently but could not help it. These manifestations were so severe as to necessitate her confinement for some weeks. There was no history of any nervous or mental disease in the family, and the patient had had no previous nervous trouble. Necropsy showed no lesions of brain or nervous system. Mouisset and Gaté conclude that in chronic heart disease the changes in the cerebral circulation and the action of toxic substances produced by alterations in the blood, may act on a naturally hyperexcitable brain to produce either actual epileptic attacks or psychic troubles with less characteristic motor disturbances.

67. **Toxic Action of Organ Extracts.**—It has been demonstrated that aqueous extracts of lung, lymphatic organs and glands of internal secretion are toxic to a high degree when injected intravenously, the toxicity being greatest in animals of the same species. A period of violent excitement with convulsions is followed by paresis, general paralysis and death. Blood-clots are usually found in the veins, but Cesa-Bianchi does not agree with Roger in attributing death to this cause. The resistance of the animal to the toxic action may be greatly increased by injecting small doses or a much diluted extract. This is an increased resistance and not a real immunity, as it decreases markedly within twenty-four hours and disappears within forty-eight. An extract of one organ exercises this protective effect against extracts of other organs also. Dold and Roger have stated that when the extract is made with fresh blood-serum of the same animal, instead of with normal salt solution, its toxicity is annulled. Cesa-Bianchi has found that the toxicity is the same, and maintains that their opposite results were due to the slow injection of the extract, thus bringing about the increased resistance before mentioned.

Semaine Médicale, Paris

July 3, XXXII, No. 27, pp. 313-324

68 *Diet in Chronic Nephritis. L. Cheinisse.

68. **Dietetic Management of Chronic Disease of the Kidneys.**—Cheinisse reviews the literature on this subject since the importance of salt in the diet has become recognized. The old rule to protect the kidneys as much as possible against irritating food and drink has been enforced even more rigorously than ever since then. Even shell-fish have now fallen under the ban on account of their high salt content. Recent research by Slovtzov indicates that the albumin in fish meat has certain advantages for the metabolism, and where strictly fresh fish can be obtained it may be used; fresh-water fish are preferable as they contain less salt. The objection to fish by some clinicians is merely because fish meat putrefies so readily. Cheinisse agrees with those who reject calves' brains, kidneys, etc., high game, bouillon, meat juice and fermented cheese. The vegetables rich in oxalic acid, cabbage, asparagus, spinach and tomatoes are generally forbidden, but Kakovsky has recently reported no harm and apparent benefit from the systematic use of small occasional amounts of raw and cooked tomatoes, spinach and gooseberries. His experience has confirmed the injurious action of mushrooms in patients with chronic nephritis, the special symptoms and

general health all suffering. There has been no mitigation of the strict rule of total abstinence from alcoholic beverages, and reduction of the total amount of fluids ingested. The restriction to milk alone has been proved unnecessary as the benefits from this were found to be mainly due to the small salt content, and by restricting the intake of salt the patient can be permitted a comparatively wide dietetic range. Cheinisse emphasizes that the drugs given in nephritis act on the cardiovascular complications and secondary kidney disturbances rather than on the primary kidney affection. He cites Kakovsky's recent communication on the irritation of the kidney from administration of theobromin sodium salicylate [a double salt official in the German pharmacopeia]. He found this irritation almost constant in his experience, as evidenced by an increase in the pathologic elements in the urine. Theocin had a similar irritating action although less pronounced (*Russki Vrach*, 1912, xi, 397). Cheinisse refers to the experiences to date with organotherapy in chronic nephritis as very encouraging, but says that the method is not ready yet for adoption in routine practice, although theoretically it seems to answer every indication.

Archiv für Kinderheilkunde, Stuttgart

LVIII, Nos. 1-3, pp. 1-240. Last indexed May 11, p. 1484

69 *Convulsions in the Newly Born. (Ueber Krämpfe bei Neugeborenen.) C. Stamm.
70 *Epigastric Hernia in Children. (Hernia epigastrica im Kindesalter.) F. Brandenberg.
71 Symmetrical Osteomyelitis After Variola. C. Schwenk.
72 *Arhythmia in Healthy Children. (Ueber Arhythmie bei gesunden Kindern.) R. Friberger.
73 *Strabismus in Children. (Schielen und Schielbehandlung im Kindesalter.) E. A. Heimann.
74 Polycystic Degeneration of the Kidneys, Especially in Children. (Ueber polycystische Degeneration der Nieren, namentlich im Kindesalter.) W. P. Shukowsky and W. Ssinjoff.
75 *Lymphadenitis in Children. (Ueber Drüsenerkrankungen bei Kindern.) D. Ssokolow.
76 Unmodified Milk in Infant Feeding. (Rohe Milch als Säuglingsnahrung.) B. P. B. Plantenga.
77 *Sarcoma in Pelvis in Children. (Beckensarkome im Kindesalter.) H. Alexander.
78 Congenital Atresia of the Esophagus. (Atresia oesophagi congenita et fissura oesophago-trachealis.) W. P. Shukowsky and A. A. Baron.

69. **Convulsions in the Newly-Born.**—Stamm reports the case of an infant born at term without obstetric trauma or noticeable asphyxia. The second day convulsions occurred, with other symptoms indicating pressure on the brain. The protrusion of the fontanels, spastic phenomena and downward rolling of the eyeballs suggested internal hydrocephalus and lumbar puncture was applied. About 40 c.c. of a reddish-brownish fluid escaped under considerable pressure, after which the fontanels sank down and the symptoms gradually subsided. A second lumbar puncture a week later released 20 c.c. of a brownish-reddish fluid after which the child rapidly recuperated and has developed normally since in mind and body. The trouble was evidently a cerebral hemorrhage, and the lumbar puncture in time saved the child's life. The cerebrospinal fluid is never brownish when the blood in it comes from a vessel injured as the puncture needle is introduced. Blood mixed with the fluid for some time does not coagulate. The syndrome in the case reported was that characteristic of hemorrhage below the tentorium. This form of hemorrhage is regarded as beyond the aid of operative measures to relieve directly the pressure on the brain. This renders the successful outcome in the present case all the more encouraging. The lumbar puncture drained away the extravasation damaging the cerebellum and the medulla oblongata. In conclusion Stamm reports a case in which severe cerebral symptoms developed after a difficult forceps delivery. Necropsy revealed a large evidently congenital defect in the brain, so that the birth trauma was not responsible for the symptoms.

70. **Epigastric Hernia in Children.**—Brandenberg has operated in four cases of this kind and has found epigastric hernia comparatively frequent in children. Attention is first called to it by periodic pains in the abdomen directly connected with the meals, especially after breakfast. The trouble is that one of the appendices epiploicæ has worked its way through the linea alba, with consequent traction on the peritoneum. If the hernia still persists after the systematic use of a rubber pad held in place by long wide strips of adhesive plaster, he advises correction by injection of paraffin or a radical operation. Conditions are more favorable for the latter in children than in adults.

72. **Arhythmia in Children.**—Summarized in THE JOURNAL, March 16, 1912, page 828.

73. **Strabismus in Children.**—Heimann reiterates that squint is due to lack of the normal power to fuse the two eyes in the act of vision and that it requires treatment from the earliest possible moment. Only when treatment is begun as the squint first develops is it possible to correct it without an operation. As soon as convergent squint is detected, the eyes should be examined under atropin and full correcting glasses worn permanently. By the age of 3 or 4, exercises with the amblyoscope, kept up for several weeks are in order. If these conservative measures fail or the angle of the squint is over 15 degrees, or vision is imperfect in one eye, operative treatment is indicated, and it can be undertaken by the age of 4 or 5. Outward squint can seldom be cured without an operation, although Heimann accomplished this in one case, arresting incipient divergent squint in four weeks by amblyoscope exercises and correcting glasses.

75. **Lymphadenitis.**—Ssokolow discusses the various theories in regard to the physiologic functioning of and pathologic conditions in the lymph apparatus, and the etiology, emphasizing the importance of this apparatus and its liability to disease, with serious effects on the organism as a whole. He then reviews the means for diagnosis and interpretation of the physical findings. The lymphadenitis may develop in an acute, subacute or chronic form. In children the tubercle bacillus is generally involved in the process but the pus cocci, pneumococcus and influenza bacillus may also originate and complicate the lymphadenitis, as also colon and typhoid bacilli and the pertussis germ. Treatment of lymphadenitis should in every instance be strictly conservative, he insists. Rubbing, kneading, massage and other measures to promote absorption should be strictly avoided. The process should not be excised and there should be no incision until suppuration is complete, if at all. The accessible lymph-nodes may be treated with heat, compresses, cataplasms and radiotherapy. When the lymph-nodes of the air passages are involved, the air breathed should be absolutely pure, free from dust, and it is best cold. With lymphadenitis in the abdominal cavity, the food should be non-irritating and non-fermenting, and as sterile as possible.

77. **Pelvic Sarcoma in Children.**—Alexander reports two cases in detail and summarizes sixteen from the literature. In two of the cases the sarcoma was at an accessible point and was successfully removed. His little patients were girls of 10 and 2. The first symptom was pain in the hip joint which subsided under rubbing. Three months later in the first case the pains returned and acute articular rheumatism was diagnosed at first and then hip joint disease, but examination revealed a large tumor filling the left half of the pelvis. Puncture brought sarcoma tissue and the child died a month later. The younger child had had symptoms for only a month before the tumor was discovered and it proved fatal the fifth month.

Berliner klinische Wochenschrift

June 24, XLIX, No. 26, pp. 1213-1260

79 *Inulin in Dietetic Treatment of Diabetes. (Ueber Inulinkuren bei Diabetikern.) H. Strauss.
80 *Simple Method for Recording Acidity of Stomach Content. (Einfache Methode zum Ablesen der Salzsäurewerte des Mageninhalts.) G. de Revoredo.
81 Spasmodic Contraction of the Stomach During Gall-Stone Colic. (Totale Gastrospasmus röntgenologisch nachgewiesen bei Cholecystitis und Cholelithiasis.) E. Schlesinger.
82 Drop in Blood-Pressure Under Hormonal. (Ueber Hormonalwirkung.) R. Mohr.
83 Epiphanin Reaction Not Characteristic of Syphilis. (Nachtrag zu der Arbeit über Epiphaninreaktion bei Syphilis.) F. M. Meyer.
84 Stab Wound of Brain; Recovery after Trephining. (Stichverletzung des Gehirns, durch Trepanation geheilt.) R. Mühsam.
85 *The Leukocyte Inclusion Bodies Not Peculiar to Scarlet Fever. (Zur diagnostichen Bedeutung der Leukocyteneinschlüsse bei Scharlach.) I. Ahmed.
86 Acute Nephritis After Injection of Iodmenthol. P. Michaelis.

July 1, No. 27, pp. 1261-1308

87 Action of Soluble Radium Salts on the Blood. (Ueber die Wirkungen von Injektionen löslicher Radiumsalze auf das Blutbild.) O. Brill and L. Zehner.

88 The Secretions in Diabetes insipidus. (Zur Pathologie der Sekretionen bei Diabetes insipidus.) A. Rosenthal.
89 Roentgenotherapy in Gynecology. (Erfolge und Technik der Röntgenbehandlung in der Gynäkologie.) H. E. Schmidt.
90 Gummatous Tracheitis. R. Stumpf.
91 Differential Diagnosis of Aneurysm of the Aorta. O. Huber.
92 *Reform in Advertising Medicinal Articles. (Die Bekämpfung des Arzneimittelunfugs und die Arzneimittelliste des Kongresses für innere Medizin.) A. Heffter.
93 The Neurorecurrences in Syphilis. (Zur Aetiologie der Neurorecidive und zur Neosalvarsanbehandlung.) W. Gennerich. Commenced in No. 25.

79. **Inulin in Antidiabetes Diet.**—Strauss has been testing further the advantages of inulin in the dietetic treatment of diabetics. [His previous communication on this subject was summarized in THE JOURNAL April 13, 1912, page 1157.] He has since been using it systematically in nine cases of diabetes and tabulates the metabolic findings in most of these patients, giving the daily details during the two or three months of the tests. He gave the inulin pure (a commercial preparation), 100 gm. a day, mixed with the food, and found that it was perfectly tolerated except possibly by one moribund patient; no intestinal disturbances were observed in any instance while all the patients increased in weight, with the above exception. The tests showed that the inulin was borne at least as well as oatmeal or wheat flour, and he thinks that it may be destined to play an important rôle in the management of diabetics. The gastric juice seems to split the inulin into levulose, but inulin, being a polysaccharid, is assimilated far more slowly than levulose; this explains the better tolerance for it. The patients continued to take the inulin over periods of five, seven or fifteen days at a time, and an unmistakable beneficial influence on the acidosis was apparent. The best results were obtained with periods of from four to eight days, with varying intervals, the inulin mixed with eggs, fruits or vegetables. He does not approve of giving the inulin in bread, as the bread may contain substances which are less likely to be tolerated. The cases in which the inulin is indicated are the moderately severe and very severe cases, especially those with acidosis. Inulin is comparatively inexpensive; it occurs naturally in artichokes, sunflower seeds, etc. It is possible that small amounts of levulose given at intervals might prove useful in diabetes, and he is now experimenting in this line. The findings in two cases are tabulated to show that the outlook is already promising with 5 gm. levulose three times a day for nine days, then suspending for a day, and then the same dose for two days. This had a decided effect in reducing the acidosis; one was a moderately severe and the other a mild case.

80. **Determination of Acidity of Gastric Juice.**—Revoredo has found Ehrmann's apparatus a remarkably simple and accurate aid in determining the amount of free hydrochloric acid and the total acidity of the gastric juice. A jar containing the alkali solution, a 1/36.5 normal solution of sodium hydrate, is mounted on a standard; a tube emerging from the base of the jar connects with a burette suspended below. The burette is graduated downward from zero to 0.5 c.c. To 10 c.c of the filtered gastric juice are added a few drops of a 5 per cent. solution of dimethyl-amino-azo-benzol, and then some of the alkali solution from the burette. The level of the fluid in the burette sinks down as the fluid is drawn from below, and the mark where the color transformation occurs is the index of the free hydrochloric acid. Then a few drops of 0.5 per cent. solution of phenolphthalein are added, and still more of the alkali solution allowed to flow in. The mark reached by the level of the fluid when the tint changes to red is the index of the total acidity. With normal conditions, the index is respectively at the marks 0.10 (yellow) and 0.20 (red). He extols the accuracy, simplicity and rapidity of the method, the fact that no calculations are necessary, and that the findings are the direct proportions in per cent. or grams, and that at a glance it is possible to determine whether the gastric acidity is much below or above normal.

85. **Inclusion Bodies in the Leukocytes Not Peculiar to Scarlet Fever.**—Ahmed states that he found these inclusion bodies in a number of patients with fever of various origins, and consequently that they cannot be regarded as pathognomonic of scarlet fever. He found them in the leukocytes of five of ten febrile tuberculous patients, in a moribund patient with tuberculous meningitis, in each of six typhoid patients with high fever, and in German measles; also in three erysipelas patients, two of whom had a high fever. The findings were negative in nine healthy controls, in two patients with varicella, and in two cases of mild measles, while they were positive in two severe cases of measles. [Compare with editorial in THE JOURNAL, July 20, p. 198.]

92. Further discussion of subject described in THE JOURNAL, June 22, p. 2006, abstract 82.

Deutsches Archiv für klinische Medizin, Leipsic

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94 *Abnormal Radioscopic Findings of the Left Heart in Health. (Ueber abnorme Gestaltung des linken mittleren Herzschattenbogens bei Herzgesunden.) Ebertz and Stuertz.
95 Improved Technic for Sphygmobolometry. (Verbessertes und vereinfachtes klinisches Sphygmobolometer, zugleich ein Taschensphygmobolometer.) H. Sahli.
96 Pulse Tracings with Stenosis of the Aorta. (Sphygmographische Befunde bei Verengerung der Aorta am Isthmus.) H. Stursberg.
97 Tests of Functioning of Vegetative Nervous System. (Zur Funktionsprüfung des vegetativen Nervensystems.) J. Bauer.

94. **Radioscopy of the Heart in Health and Disease.**—Ebertz and Stuertz examined a number of soldiers and conclude that too much reliance should not be placed on the Roentgen picture in the diagnosis of heart lesions. There is often an increase in the shadow on the left side in normal men. It may be increased by exertion in normal hearts and be decreased by rest in bed in patients with mitral lesions. In early mitral disease there is no increase. They describe in detail the results of several of their examinations and recommend the upright position for radiography in general.

Deutsche medizinische Wochenschrift, Berlin

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98 *Glaucoma. (Pathologie und Therapie des Glaukoms.) L. Bach
99 *Death Under Salvarsan. (Histologische und experimentelle Untersuchungen über den Salvarsantod.) T. V. Marschalko and D. Veszpremi.
100 *Serodiagnosis of Cancer. (Zur Frage der serologischen Karzinomdiagnostik.) M. Rosenberg.
101 Bacteriolysis in Guinea-Pig Peritoneum. (Ueber Auflösung von Tuberkelbazillen im Peritoneum gesunder und tuberkulöser Meerschweinchen.) R. Kraus and G. Hofer.
102 *Cause and Initial Symptoms of Pernicious Anemia. O. Schauman.
103 *Albumose in Hormonal (now omitted) Possibly Responsible for Collapses. (Ueber Kollapswirkung des Hormonals.) G. Zuelzer.
104 Tophi on the Eyelids. (Ueber Gichttophi an den Augenlidern.) E. Ebstein.
105 Radium Emanation. (Neue Untersuchungen mit der Radiumemanation.) P. Mesernitzky.
106 Local Treatment with High Frequency Currents. (Ueber die lokale Hochfrequenzbehandlung.) Engelen.
107 *Spontaneous Subsidence of Carcinomas. (Zur Lehre von der Spontanheilung der Karzinome.) A. Theilhaber.

98. **Glaucoma.**—In the course of this postgraduate lecture on glaucoma, Bach emphasizes the importance of recognizing the initial or prodromal symptoms, especially the unilateral frontal headache, the sensation of pressure in the eye and orbit, a mist over the eyesight, and prismatic colors surrounding a light. These phenomena may occur with other conditions, but they are seldom lacking in the history of incipient glaucoma. The cornea looks less shiny, less smooth and transparent, especially in the center, the pupil is dilated, slightly irregular and sluggish in its reactions. After a period with these phenomena, conditions return apparently to normal for a time but the intervals grow shorter and shorter, although at first they may last for weeks or months. The "near point" may remain unusually far out, even during the intervals. Emotions or excesses may bring on the prodromal attacks or they may occur without apparent cause. If they come on in the evening, they subside as the patient drops to sleep. These prodromal symptoms are already evidences of glaucoma but in a mild form. The constitutional symptoms with acute inflammatory glaucoma are sometimes so severe that they obscure the ocular symptoms. The intense headache on one side, vomiting, fever, insomnia, etc., suggest influenza, gastric catarrh, brain tumor, or migraine. The acute form may blend into a chronic or the latter may develop from the start. With simple non-inflammatory glaucoma the eye may look appar-

ently normal, but close inspection will show congestion in the anterior ciliary veins and dilatation of the sluggish pupil. Treatment should be general and local, instillation of a 0.25 to 1 per cent. solution of eserin or a 1 or 2 per cent. solution of pilocarpin or both combined. General measures include avoidance of all emotional stress or excitement, and careful regard to the condition of the heart vessels and blood-pressure. Near work sometimes arrests an attack of glaucoma as also venesection by reducing the blood-pressure. These measures are particularly useful with hemorrhagic glaucoma and in the prodromal stage.

99. **Causes for Death Under Salvarsan.**—A previously unpublished fatality after intravenous injection of salvarsan is reported, the patient of 38 dying in a few days with symptoms of encephalitis similar to the cases previously mentioned in these columns. Experimental research on rabbits gave confirmatory findings, the animals showing the same symptoms and pathologic changes as in the clinical cases after intravenous injection of salvarsan. The changes were in the form of multiple hemorrhages in the brain resulting from stasis and thrombosis. No gross changes in the nervous system could be detected. Half of the rabbits died of those given doses proportional to the current clinical dosage. The tolerated dose seems to be smaller than hitherto assumed, and it is necessary to proceed more cautiously with the dosage in the clinic, especially at first. Experience seems to show that smaller doses than those currently used are as effectual as single or repeated large doses. In the fatal case reported, with a weight of less than 60 kilograms, 0.53 gm. of salvarsan had been injected into a vein. The patient had had no symptoms from his infection twenty years before but as the Wassermann reaction was positive he insisted on the salvarsan treatment. A dose per kilogram of 0.005 gm. salvarsan seems as high as can be safely ventured.

100. **Serodiagnosis of Cancer.**—Rosenberg found positive complement fixation more frequent with serum from cancer patients than with others but similar findings are observed in so many other conditions that he regards the test as having little practical differential value.

102. **Early Symptoms of Pernicious Anemia.**—Schauman has been for years studying the previous history of patients with pernicious anemia, striving to discover some early characteristic features peculiar to it. He has become convinced that the pernicious type of anemia may occur with nearly normal hemoglobin percentage. In a typical case reported in detail the anisocytosis was what first confirmed the pernicious nature of the trouble after suspicion had been aroused by a periodically recurring feeling of soreness in the tongue and mouth, sometimes also in the throat (*Gefühl von Wundsein auf der Zunge*, etc.). The tongue was at first deeply grooved but moist and not coated. During the exacerbation the reds were abnormal in shape and size and the hemoglobin dropped from 90 to 53, but as the condition improved under arsenic the reds became normal again. He thinks that immunity processes are involved in the syndrome, and that the benefit from arsenic may be due to production of antibodies under its influence. He practices at Helsingfors, Finland, and tapeworm is common there. Some of his patients had had a tapeworm expelled.

103. **Collapse under Hormonal.**—Zuelzer is the originator of hormonal, and he always found it effectual and harmless in his extensive experience with it until recently. In the 12,000 cases in which hormonal has been used, during the last two years, including over 4,000 intravenous injections, no mishaps of the kind were observed until comparatively recently. His experience had constantly confirmed the harmlessness of hormonal until after his return from a recent three-months' absence when he had four patients develop, in turn, symptoms of severe collapse. The collapse was saved from being quite serious only by the extremely cautious method of administration of the hormonal. He was at once certain that some change had been made in the method of manufacture, and the cause—admixture of an albumose—was discovered and put an end to. The hormonal now manufactured is free from this admixture which is known to be harmful. He gives the pulse rate and blood-pressure as determined at regular intervals while the hormonal was being injected and afterward, showing that there is no possibility now of a commotion in the cardiovascular system. The blood-pressure and pulse before the injection were 140 and 120, and during and after they were constantly 130 and 120 in one case; in another, 135 and 102 before and 120 and 92 after a third injection (15, 25 and 32 c.c. of hormonal); 125 and 100, 95 and 100, and 115 and 110 in a third case.

107. **Spontaneous Subsidence of Cancer and Prophylaxis of Recurrence.**—Theilhaber is convinced that active vital processes are unfavorable to the growth of cancer, and consequently he strives by general tonic measures, local hyperemia, stimulation of blood production by venesection, and ovarian extract treatment after hysterectomy, to bring the tissues in the region to their highest vital activity after removal of the cancer. He found that the outcome was better in his cases in which the operation was necessarily incomplete, when there had been considerable loss of blood during the operation. Consequently he now does venesection in the second week after the operation, withdrawing 400 or 500 c.c. of blood, and his impression of the effect is very favorable.

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CXVI, pp. 1-818, T. Kocher Festschrift

108 *Thyroid Tuberculosis. (Zur Klinik der Schilddrüsentuberkulose.) C. Arnd. (Zur Lehre der Schilddrüsentuberkulose). E. Hedinger.
109 Sporotrichosis in Switzerland. (Einige Fälle von Sporotrichose und die Sporotrichose in der Schweiz.) E. Dind.
110 *Contrecoup—Indirect—Concussion of Brain and Contrecoup Fracture of Skull. (Die Contrecoup-Quetschung des Hirns und die Contrecoup-Fraktur des Schädels.) K. Doepfner.
111 *Resection of the Stomach. (Erfahrungen über Magenresektion.) G. Feuerer.
112 *Glusinski Test of Stomach Functioning. (Resultate der Untersuchungsmethode nach Glusinski, modifiziert nach Kocher bei floridem Ulcus ventriculi. Ein Beitrag zur Magendiagnostik.) A. Fonio.
113 Simple Fracture of Radius at the Wrist. (Diagnose und Behandlung der subkutanen Radiusfraktur am Handgelenke.) C. Kaufman.
114 *Value of Gastro-Enterostomy. A. Kocher.
115 *Porencephalus and Hydrocephalus. (Fall von Porencephalo-Hydrocephalia—Interna—traumatica unilateralis permagna, eine klinische Studie über traumatische Porencephalie und Hydrocephalie.) J. Kopp.
116 *Radical Operation for Femoral Hernia. (Ueber ein Verfahren der Radikaloperation freier Schenkelbrüche.) E. Kummer.
117 Tincture of Iodin Sterilization at Berne. (Ueber die Jodtinktur in der Berner Schule.) E. Lardy.
118 *Coxa Vara. J. Lauper.
119 Frontal and Ethmoidal Sinusitis. (Erfahrungen bei der Radikalbehandlung der Eiterungen der Stirn- und Siebbeinhöhlen seit dem Jahre 1902.) W. Lindt.
120 *Enlarged Thymus with Exophthalmic Goiter. (Ueber die Kombination von Morbus Basedowii mit Thymushyperplasie.) H. Matti.
121 Pathologic Anatomy of Exophthalmic Goiter. (Zur pathologischen Anatomie des Morbus Basedowii.) C. A. Pettavel.
122 *Treatment of Inguinal and Umbilical Hernia in Child Outpatients. (Ueber die ambulante operative Behandlung der Leisten- und Nabelbrüche im frühen Kindesalter.) P. Pfaehler.
123 Technic for Goiter Operations. (Zur Technik der Kropfoperation.) F. de Quervain.
124 History of the Thyroid. (Beitrag zur Geschichte der Schilddrüse.) W. E. von Rodt.
125 *Heliotherapy of Surgical Tuberculosis and Roentgenoscopic Control. (Höhen- und Sonnenkur der chirurgischen Tuberkulose, deren Tiefenwirkung und Kontrolle durch die Röntgenstrahlen.) Rollier.
126 Pyosalpinx Perforating into Rectum. (In das Rektum perforierte, besonders tuberkulöse Pyosalpinx.) C. Roux.
127 Gunshot Aneurysm and Varices in Axilla. (Getrennte Aneurysma- und Varixbildung der Axillargefässe durch Schussverletzung.) G. Schwyzer (Minneapolis, Minn.).
128 Local Treatment of Laryngeal Tuberculosis. (Unsere Erfolge in der lokalen Behandlung der Kehlkopfphthise mit Beranek-Serum, Elektrokaustik und Röntgenbestrahlung.) F. Siebenmann.
129 Etiology of Keratoconus. A. Siegrist and K. Kottmann.
130 *Artificial Thrombosis in Treatment of Varices. (Behandlung der Varicen durch die künstliche Thrombose.) E. Tavel.
131 Influence of Altitude on the Blood. (Einfluss des Höhenklimas auf die Widerstandsfähigkeit der roten Blutkörperchen.) F. Wanner.
132 Gangrene of Fingers after Suppuration of Stump of Umbilical Cord. (Spontangangrän 2 Fingerphalangen bei einem 2 Monate alten Brustkind nach nekrotisierendem Nabelgeschwür und Paronychia streptomycotica.) E. Wieland.
133 *Ultimate Outcome of Operative and Non-operative Treatment of Tuberculosis of the Kidneys. (Die Endresultate operativer und nicht-operativer Behandlung der Nierentuberkulose.) H. Wildbolz.

108. **Tuberculosis of the Thyroid.**—Arnd reviews the history of thyroid tuberculosis and reports three cases in which microscopic examination of a goiter after removal showed minute

tuberculous foci. None of the patients had any other signs of tuberculosis and they have been healthy since. They were two women of 35 and 53 and a man of 32; the latter had enlarged lymph-nodes in the neck. Arnd has been able to find published records of only forty-four cases of thyroid tuberculosis not associated with acute miliary tuberculosis; in five other cases the latter could not be positively excluded. In none of the cases did the infection spread from the thyroid. Hedinger states that he found traces of tuberculosis in ten of the 659 goiters he has removed; most of the patients were clinically healthy and none had severe tuberculosis. All but one were women. He thinks that tuberculous processes probably occur in the thyroid comparatively often and heal spontaneously.

110. **Indirect Fracture of Skull and Indirect Concussion of the Brain.**—Doepfner's research has confirmed anew the possibility of serious injury and fracture of the brain or skull, respectively, at the point opposite to the direct injury. He gives both theoretical, clinical and pathologic-anatomic data to sustain his assertions.

111. **Resection of the Stomach.**—Feurer describes the good results of ligation of the middle colic artery in removing a pyloric cancer. Lanz did this in a similar case in 1907, detaching the mesocolon and wrapping the transverse colon in the greater omentum, instead of resecting it. The method works well in the exceptional cases requiring it. Feurer then reports the ultimate outcome in sixty-five other cases of resection of the stomach, including fifty-eight cancers. Nine of the cancer patients are living, the interval since the operation being four to eleven years in six and less than a year in the others. He remarks that over 2,000 persons die in Switzerland every year from gastric cancer, in a population of 3,500,000. The resections of the stomach for cancer average about fifty a year. In conclusion he reports a case of resection of the pylorus for a tumor which seemed to be a lymphomatous growth. There was no trace of cancer, ulcer or leukemia, and the man of 42 has been in good health since. Two years ago he removed from the stomach of a woman of 74 a sarcomatous myoma and the patient has been well since.

112. **Early Diagnosis of Gastric Cancer.**—In 1902, Gluzinski called attention to the diagnostic importance of the absence of free hydrochloric acid in the stomach content under certain conditions. Kocher's experience has confirmed his statements but he has modified the conditions for the test, and Fonio here reports its application in thirty cases. The findings were confirmed by an operation or the course of the affection, and he reaffirms that the method is an important aid in the differentiation of gastric ulcer. The chief advantage of the method is that it is a question of only the relative increase in the acid after the different test-meals, and it is immaterial whether the acidity is normal or above or below. The method is particularly instructive in the cases in which an ulcer is beginning to develop cancerous degeneration. The test is based on the assumption that an ulcer is always accompanied by an acid catarrh while a cancer never develops without a chronic mucous gastritis. Kocher applies the test as follows: The contents of the fasting stomach are siphoned out in the morning and the findings recorded as to amount, color, smell, relics of food, blood, etc., litmus reaction, free acid with Congo paper and free acid with phloroglucin-vanilin; lactic acid with Strauss or Uffelmann tests, and occult blood with the guaiac-turpentine test. The amount of free acid and total acid is determined by titration. The microscope findings are also recorded. Then the stomach is washed out clean with tepid water and an Ewald-Boas test breakfast is given. Forty-five minutes later the stomach contents are siphoned out again and the stomach thoroughly rinsed out anew. Then the test-dinner is given; about 100 gm. of chopped roast veal or boiled beef; 150 gm. potato cooked with 20 gm. fat and no fluid. The stomach contents are then siphoned out anew after two hours. All this is done on the one day. The finding of larger amounts of hydrochloric acid after the test dinner speaks for ulcer, smaller proportions for cancer. The insufficiency of the stomach mucosa is revealed by the lack of acid after the test-dinner, even when some acid was found after the test-breakfast. Fonio regards such findings as absolutely conclusive in dubious cases. He tabulates the findings in twenty-six ulcer cases and comments on the value of the information thus derived. In four other cases the findings were dubious and the course of the cases showed that the ulcer at the time must have been just starting malignant degeneration.

114. **Gastro-Enterostomy.**—Kocher reviews fifty cases in which gastro-enterostomy was done alone for a non-malignant gastric affection, and the patients were reexamined from two to twelve years afterward. The outcome was almost invariably good. Kocher makes the opening at the lowest point of the greater curvature and does not close the pylorus. The patients with preceding hyperacidity were found with normal acidity. There was reflux of bile in nearly every case, even the oldest, but this seemed to do no harm. Pre-existing constipation had also been cured. The bowel functioning was normal in all except that one patient had a tendency to diarrhea. There was no recurrence of the ulcer in any case. The ultimate results in the cases of florid ulcer were found so excellent that Kocher insists there is no need for resection; a simple gastro-enterostomy answers every purpose and wards off cancerous degeneration. The best technic is Hacker's longitudinal retrocolic opening with a short loop or none at all (Petersen, Czerny), at the lowest point of the greater curvature. The Wölfler technic is more liable to complications on the part of the bowel. Occlusion of the pylorus prevents integral restitution of the ulcer. The earlier the gastro-enterostomy is done, the less danger of cancer. On suspicion of the latter, of course, resection is inevitable.

115. **Successful Operative Treatment in Case of Traumatic Porencephalus and Hydrocephalus.**—Kopp gives an extensive report of a case in which he succeeded in restoring to health a young woman who had presented serious brain symptoms since childhood. After a fall on the head at the age of 3, the child was sick for a year but then seemed well until the age of 12 when epileptic seizures developed and at 16 she was operated on. Instead of the anticipated cicatricial process involving the skull, meninges and cortex at the site of the old trauma, a cavity containing water was found. The cavity and the hydrocephalus were so extensive that the comparative insignificance of the resulting symptoms was most remarkable. The patient had no further seizures after the operation, and except for a slight transient recurrence of certain motor symptoms, she has been in normal health during the five years since the operation. The protracted early symptoms after the trauma, the complete clinical recovery for nine years, and the incongruence between the severity of the lesion and the mildness of the symptoms, were striking features of the case. The cyst was more than twice as large as the largest brain cyst yet reported (Kocher, 200 c.c) aside from the echinococcus cysts. Among the symptoms noted before the operation were hemianopsia and loss of the hemiopic pupil reflex. The operation consisted in filling the empty cavity with salt solution and making a Kocher decompressive valve without draining. Kopp compares his case with similar ones in the literature, devoting seventy-five pages to discussion of the subject.

116. **Femoral Hernia.**—The technic described by Kummer aims to isolate, ligate and remove the hernial sac at the very highest point possible, and to close the femoral canal completely, both at the inner and outer ring. He reports twenty-two cases in which the method was applied with most excellent results. The hernial sac is exposed in the triangle of Scarpa and mobilized as high up as can be reached. It is then opened, all adhesions broken up and the sac is pulled out again and again until the wall of the bladder is dragged into view. The sac thus pulled out is pierced and ligated above its neck. The left forefinger is then introduced through the femoral canal and worked up gently between Gimbernat's ligament and the femoral vein up to Cooper's ligament. A needle is then introduced from without through the fascia of the external oblique muscle and through the internal oblique and transverse muscles until the tip of the needle touches the tip of the finger. The needle is then pushed on through into

the femoral canal—all the time under guidance of the finger, close to the horizontal ramus of the pubis. A stout double silk suture thread is then threaded in the needle and the end is drawn up and out above as the needle is withdrawn. The same procedure is then repeated with the needle introduced 1.5 cm. farther inward and a little downward, and the two ends of the silk are tied above the skin, thus forming a stout U loop which draws up and thus closes the entire femoral canal with a single suture and no damage to any organs in the vicinity. The skin above is drawn in to form a little recess, showing that the suture is still doing its work. The article is accompanied by six loose stereoscopic pictures in an envelope showing conditions in the groin in both men and women, to emphasize the advantages of this simple method of correcting hernia.

118. **Coxa Vara.**—Lauper gives the results of recent reexamination of fifteen patients with coxa vara and discusses the various indications and technics followed. Wedge osteotomy of the neck of the femur with or without resection of the head gave excellent results, and it is safer than blind measures in the dark. There is always a possibility of a tuberculous process being involved, with danger of its becoming aggravated by forcible reduction without incision.

120. **Enlarged Thymus with Exophthalmic Goiter.**—Matti analyzes ten cases of exophthalmic goiter in which the patients died during or soon after an operation on the thyroid and the thymus was found exceptionally large. He has compiled 133 similar cases from the literature; fully 76.5 per cent. of all the exophthalmic goiter patients who have died during or immediately after an operation on the thyroid had an unusually large thymus. It seems evident, he thinks, that the thymus and the thyroid act in concert and each aggravates the morbid condition induced by abnormal functioning of the other. Certain features of the cases suggest further that adrenal functioning is depressed by excessive or perverted thymus-functioning. In the ten cases reported the adrenals were exceptionally small. It is possible that an operation on the thymus accompanied by epinephrin treatment might be a logical and useful preliminary to an operation on the thyroid for patients with exophthalmic goiter whose thymus is known to be enlarged. In any event, special caution is necessary with such patients.

122. **Office Treatment of Hernia in Children.**—Pfaehler reviews his experiences with seventy-six operations for inguinal or femoral hernia and twenty-four for umbilical. In twenty-five cases the hernia was bilateral. Complicated dressings and bed rest are not necessary and the simpler the operation the better the results. Asepsis should be the rule, refraining from antiseptics on account of the liability to eczema. Chloroform should never be used for children; ether carefully given is entirely harmless for them.

125. **Heliotherapy or Sunlight Treatment of Surgical Tuberculosis.**—Rollier's views and results have recently been summarized in these columns May 25, p. 1640, and June 15, p. 1885. He here gives further details and brings his report down to date, emphasizing in particular the perfect results obtained by his conservative mountain air and sunlight treatment as shown by radioscopy later.

130. **Artificial Thrombosis in Treatment of Varices.**—Tavel's announcement of his successful application of this means of treating varices was summarized in THE JOURNAL, April 27, 1907, p. 1466. He has applied it in fifty cases to date and reports gratifying results. The method is based on the better outcome noticed after ligation when spontaneous thrombosis occurs, and the assumption that the thrombosis is a natural healing process. The artificial thrombosis cures the varices without necessity for general anesthesia and without disfiguring scars. Ligation alone is not effectual, as he found in an experience of thirty cases, and collateral circulation is liable to annul the benefit even when resection supplements the ligation. But his method of artificial thrombosis as adjuvant to ligation and resection has proved extraordinarily effectual, while it is entirely harmless, he affirms. Local anesthesia is generally sufficient. Before ligating the vein he outlines its course with fuchsin as the patient stands on a table. A Pravaz needle is then introduced into the vein and blood aspirated to show that it is really in the vessel. Then the patient sits on a chair on the table and 2 or 3 c.c. of a 5 per cent. phenol solution is injected at this point and again elsewhere until 10 c.c. in all is injected at one sitting. The injection is made one or two days after the ligation-resection. His experience has been that the best point for it is in the triangle of Scarpa, where he resects the saphenous vein for a stretch of about 5 cm., near its junction with the femoral vein.

133. **Tuberculosis of the Kidneys.**—Wildbolz states that over 60 per cent. of his 125 patients nephrectomized for tuberculosis recovered, and nearly 60 per cent. are still in good health after an interval of over three years. Complicating tuberculosis of the genital organs renders the prognosis much graver, but 43.2 per cent. are still in good health of the thirty-seven in this group. He has been collecting statistics from his colleagues in Switzerland in regard to the outcome in non-operative cases. From a total of 1,500 Swiss physicians he obtained data in regard to 316 cases with bacteriologic control and under observation for at least two years. Only ninety-eight are still alive and sixty-eight of these are great sufferers. Only thirty are free now from appreciable subjective symptoms; objective examination was not possible. This clinical recovery has lasted to date for over five years in sixteen, and from two to five years in the fourteen others. One of these patients has been clinically well during the ten years since tuberculosis of the kidneys was positively diagnosed, and she has borne several children in the interim. One other passed safely through a pregnancy, but another went into a decline during a recent pregnancy. Thirteen other patients finally succumbed to a flaring up of their kidney tuberculosis after a lull and apparent recovery lasting from eight months to seven years. Long survival even with continuous symptoms is possible; sixteen patients thus survived for from ten to thirty years. In thirty-six under 20, eight are in the group of clinical recoveries but only two in the fifty-six over 40. In Wildbolz' own experience with sixty-four patients with renal tuberculosis who were not operated on, only thirty are still living, and only nineteen whose first symptoms were noted over five years ago. All but five of the total survivors still suffer seriously from their renal tuberculosis and only one of these seems really cured; the others still have pus and tubercle bacilli in the urine. The one cured patient had only an incipient tuberculous process in the kidney and it seems to have healed without impairment of function. She took no medicine but went to live in the country for several months.

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134 Differential Diagnosis and Complications of Cholelithiasis. F. Umber.
135 *The Modern Treatment of Syphilis. (Moderne Syphilisbehandlung.) C. Bruhns. Commenced in No. 25.
136 *Vertigo as a Symptom. (Diagnostische Erörterungen über Schwindel.) S. Erben.
137 *Local Serotherapy in Diphtheria, Scarlet Fever and Suppurative Processes. (Neue Gesichtspunkte zur Behandlung der Diphtherie, des Scharlachs und von eitrigen Prozessen.) Lorey.
138 Serotherapy of Pneumonia. (Behandlung der Pneumonie mit intravenösen Injektionen des Neufeld-Haendelschen Pneumokokkenserums.) W. Weitz.
139 Housing and Infant Mortality. (Die Lokalisation der Säuglingssterblichkeit in Berlin und ihre Beziehungen zur Wohnungsfrage.) H. Liefmann and A. Lindemann.
140 The Amphibian Eye. (Das Amphibienauge in der Entwicklungsmechanik.) V. Franz.

135. **Treatment of Syphilis.**—Bruhns concludes with the statement that recent progress in treatment of syphilis consists mainly in our being able now to attack the disease with greater vigor from the start. He says of the neurorecurrences under salvarsan that they are very rare in comparison with the extensive use of salvarsan. A footnote added later reports the severe collapse of a patient after infusion of 0.15 c.c. neosalvarsan. Nausea, vomiting, cyanosis and pulselessness followed immediately and an intense scarlet eruption broke out over the whole body. The woman began to recuperate after an hour of stimulants of various kinds and in five hours

was apparently quite restored. In none of the five other patients given similar injections the same morning was any tendency of the kind observed, and he is inclined to assume a special idiosyncrasy in the case.

136. **Vertigo as a Symptom.**—Erben describes the reaction of the normal vestibular apparatus to stimuli of various kinds, especially pouring a little cold water into the ear, and the differential importance of modifications in the reaction. The vertigo from pressure on the brain is a continuous sense of being about to fall, with paroxysmal exacerbations. Vestibular vertigo subsides more completely in the intervals, and is more of a sensation as if the environment were turning around. Vertigo from oculomotor paralysis is generally arrested when the patient shuts his eyes. Extreme pallor coming on suddenly with the vertigo explains it as syncope and excludes simulation. Lead and tobacco poisoning, and auto-intoxication of intestinal origin, are all liable to entail dizziness. Hysteric and neurasthenic vertigo is brought on generally by emotions or certain associations, and generally outside of the home. The dread of falling is more marked in this form, and nystagmus is never encountered nor the Romberg sign. The reaction to the cold water poured into the ear is exceptionally intense and may last for half an hour. The vertigo sometimes noted after a mild accident to the skull is transient; when it persists for months it is of neurasthenic nature. But any accident to the skull severe enough to induce unconsciousness, vomiting and slowing of the pulse is liable to occasion mild vertigo at times during the first six months, even when the ear does not seem to have been injured.

137. **Local Serotherapy in Diphtheria, Scarlet Fever and Suppurative Processes.**—Lorey comments on the peculiar malignancy of the diphtheria which has prevailed at Hamburg during the last three years. The old confidence in the saving virtues of antitoxin has been rudely shaken, and he queries whether it might not be more effectual if the antitoxin were made from a local strain of diphtheria bacilli; a strain might be found which has a special aptitude for inducing paralysis and thus prove particularly effectual in the severer forms of diphtheria. Lorey calls attention to the remarkable efficacy of antitoxin applied locally to the eye, nose or throat in diphtheria and scarlet fever. He uses a 400-fold antitoxin, diluted one part to twenty-nine of physiologic salt solution or 0.5 per cent. solution of phenol. The patient gargles or sprays with this, or it is sprayed through the tracheotomy opening, and a tampon dipped in it is applied afterward, where the location permits. The membranes break up and are thrown off, while there is a profuse watery secretion beneath. Antitoxin is injected as usual besides, and the parts are kept well cleansed, the skin around being vaselined to ward off eczema. The same local treatment has proved equally effectual in the severe sore throat of scarlet fever, etc. The principle of this local serotherapy is like that of Müller and Peiser's proteolytic ferment treatment, that is, with undiluted blood-serum or puncture fluid, the antiferments contained in it checking the proteolytic leukocyte ferment action. Lorey found fresh horse serum from the slaughter house as effectual as diphtheria antitoxin, and is now experimenting with beef serum. The serum from different horses varies in its bactericidal power, and when no action is observed he throws away his supply and gets new. No injurious by-effects were observed in any instance, and he commends this local serotherapy as a valuable adjuvant in treatment of diphtheria by the general practitioner. The effect was particularly marked in his cases of diphtheria of the eye, and the serum could be kept longer in direct contact with the lesion.

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141 •Irruption of Pleural Empyema Into the Lung. (Ueber langsamen Durchbruch kleiner Pleuraempyeme in der Lunge.) A. Schmidt.
142 Obstetric Paralysis of the Arm. (Die Entbindungslähmung des Armes.) F. Lange.
143 Experimental Research on Poisoning from Rattlesnake Bite. (Vergiftung mit Klapperschlangengift.) E. Harnack and H. Hildebrandt.
144 •Plastic Operations on the Nerves. (Neue Wege der Nervenplastik.) A. E. Stein.
145 •Chronic Recurring Pyelitis in Children. (Chronische rezidivierende Pyelitis im Kindesalter.) W. Birk.
146 •Epilepsy After Electric Accident. (Epilepsie nach Unfall durch elektrischen Starkstrom.) P. Jolly.
147 Probable Aggravation of Brain Cancers by Salvarsan. (Ueber einen mit Salvarsan behandelten Fall von malignem Gehirntumor.) C. E. Jooss.
148 Acute Appendicitis in Two Young Children in One Family in One Week. (Epidemiologisches zur Perityphlitis.) S. Wahle.
149 Clinical Importance of Hypersusceptibility to Albumin. (Die Auslösung von Ueberempfindlichkeitserscheinungen durch körpereigene Eiweisssubstanz und ihre klinische Bedeutung.) P. Haussner.

141. **Perforation of Pleural Empyema Into the Lung.**—Schmidt does not refer to the rupture of a large empyema or its sudden occurrence but to the gradual and generally unsuspected irruption of the pus into the lung proper, from some old encapsulated, small stationary suppurative process in the pleura. He has encountered three such cases, as he reports in detail with twelve radiographs. If the perforation had been into a bronchus, the expectoration would have been more profuse and more rapid. The sputum was only moderate in amount and it consisted of small lumps coated with mucus, free from a putrid odor. It assumed this character at once after an exploratory puncture; this probably had been a factor in the perforation into the lung. The pus was passing into the lung for weeks and months, but the lung did not seem to suffer from this except possibly very slightly in one case as was suggested by the discovery of elastic fibers. In such cases it is probably better to wait a while instead of attempting to evacuate the focus at once, merely repeating the puncture and aspiration as needed. In the case of children in particular, puncture soon ceases to bring pus, the temperature returns permanently to normal and the child is soon well. Such experiences in the past have been explained as spontaneous absorption of the pus, but Schmidt is able to prove that in many cases, at least, the pus is gradually evacuated by expectoration.

144. **Plastic Operations on the Nerves.**—Stein regards Stoffel's work in this line as very important. [The principles involved were summarized in THE JOURNAL, Dec. 30, 1911, p. 2168.] Stein gives a detailed description of a case in which he cured a boy of 9 of typical Weber's paralysis of the arm by a plastic operation on the nerves, instead of the tendons, applying Stoffel's method of separating out the special nerve fibers involved, by means of weak electric stimulation of the separate bundles of fibers. The results have been excellent to date and the improvement is still progressing.

145. **Chronically Recurring Pyelitis in Children.**—Birk has encountered ten cases and thinks that acute pyelitis is more liable to leave traces favoring recurrence than is generally suspected. The trouble flares up after months or years of apparent complete recovery. In the first case reported there were five of these recurrences in ten years, the last one at the age of 12. Coexisting tuberculosis and the exudative diathesis afford a marked predisposition; in seven of the ten cases reported the patient or other members of the family were tuberculous and all showed signs of the exudative diathesis, very pronounced in three cases. All but one of the patients were girls, and the recurrences seemed to develop in connection with a "cold." The symptoms did not always point to the urinary apparatus; generally there were only fever, headache or vomiting, but there may be pains in the kidney region and tenesmus. Typhoid, pneumonia, or meningitis may be suggested, as no one thinks of pyelitis. This is especially liable to be the case with infants, as the affection generally begins with a stormy onset. The diagnosis is cleared up by the turbid aspect of the urine and an acid reaction to litmus paper. Microscopic examination will settle the matter and point the way to effectual treatment. Unless properly treated the disturbance may drag on and the child run into an actual decline. In most cases the pyelitis yields to hexamethylenamin and salol with copious flushing of the kidney pelvis with ten or mild mineral water. This cures in the majority of cases and cures the fever in all. Only a few writers have mentioned this protracted tendency to recurrence but it cannot be very rare. It is a question what becomes in later life of persons who had recurring pyelitis in childhood.

Birk has had opportunity to investigate this question in one case and states that the young woman had no signs of urinary trouble when she passed through puberty and a pregnancy although she had had several recurrences of the pyelitis up to the age of 12.

146. **Epilepsy After Electric Accidents.**—Jolly's patient was a healthy young man of 23 who became involved in a short-circuit of the trolley wire, carrying a current of nearly 500 volts. Except for burns on his hands and transient pains in the abdomen he showed no ill effects of the accident, which had rendered him unconscious, until fourteen days later when he had an epileptic seizure. Similar seizures have returned since every two weeks at least, and the young man's mind has shown slight impairment. Jolly compares this case with a few similar ones on record; in most of them a predisposition had been noticed. He thinks there can be no doubt that the electric current is able to induce the changes in the central nervous system which are responsible for epilepsy.

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150 Diatheses in Children. (Kinderliche Krankheitsanlagen — Diathesen — und Wahrscheinlichkeitsrechnung.) M. Pfaundler.
151 Cretins and the Neanderthal Type. (Neanderthalmerkmale bei Kretinen?) E. Bircher. (Nochmals die Kretinenfrage.) Finkbeiner.
152 Cleavage of Fat in Infant's Blood. (Fettspaltung im Säuglingsblut.) S. Samelson.
153 Pepsin Digestion in Infants. (Die Pepsinverdauung im Säuglingsmagen unter Berücks. der Acidität.) H. Davidsohn.
154 Severe Motor Neurosis in Child. (Psychogene Akinesie auf Grund einer schweren Neurose im Kindesalter.) T. Goett.
155 Transmission of Whooping-Cough to Monkey. (Ueber den Bordet Gengouschen Keuchhustenbacillus, bes. Uebertragungsversuche des Keuchhustenbacillus auf Tiere.) I. Inaba.

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156 Duodeno-Jejunal Ileus. (Der duodeno-jejunale Darmverschluss ein selbständiges Krankheitsbild.) E. Bircher.
157 Distention of Ampulla of Rectum Early Symptom of Septic Appendicitis. (Die Maximaldehnung des Mastdarms als ein sehr frühes Symptom bei Appendicitis acuta septica.) B. Przewalsky.

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158 Local Anesthesia of the Brachial Plexus. (Die supraclaviculäre Anästhesierung des Plexus brachialis.) E. Borchers.
159 *Drainage by Opening Hole in Suture. (Drainage durch "Wegnähen" der Wundränder.) W. Wolf.
160 Fracture of the Scapula. Preiser.

159. **Round Hole Left in Suturing Aseptic Wounds, for Drainage.**—Wolf draws the lips of the wound apart at one or two points between the stitches and fastens the lips back on each side by a single stitch, thus leaving a round or, to be more correct, a square hole through which the secretions escape. This is his routine practice for small aseptic wounds; no drain is required, merely an opportunity for the natural secretion of the wound to find its way outward instead of accumulating beneath the incision as it heals. The incision grows together so rapidly that unless the lips are thus held apart there is no chance for oozing.

Zentralblatt für Gynäkologie, Leipsic

June 22, XXXVI, No. 25, pp. 793-832

161 Treatment of Placenta Prævia. (Zur Placenta praevia-Therapie.) B. Schweitzer.
162 Stroganoff's Prophylactic Treatment of Eclampsia. (Die Eklampsiebehandlung nach der prophylaktischen Methode in den Berliner Kliniken.) W. Stroganoff.
163 Instrumental Dilatation of Uterine Cervix. (Bemerkungen zur mechanischen Collumerweiterung.) V. Frommer.

June 29, No. 26, pp. 833-880

164 Importance of Bacteriologic Control of Blood for Prognosis. II. (Prognostische Bedeutung des Keimnachweises im Blut. Neue Ergebnisse der bakteriologischen Blutuntersuchung bei fieberhaften Aborten.) E. Sachs.
165 *Prophylaxis of Thrombosis by Air-Pressure Massage. (Prophylaxe der Thrombose durch Luftdruckdauermassage—Hochdruckmassage und künstl. Zirkulation.) F. Kuhn.

165. **Compressed-Air Massage.**—Kuhn expatiates on the importance of mechanical factors in the development of thrombosis, and in the location of the thrombi. If the bloodstream is kept active throughout its course, thrombi do not develop. In prevention of thrombosis, therefore, the aim should be to keep the circulation active, and he has devised a special technic to accomplish this by drawing over the limb a double-walled, air-tight bag and pumping air into it. The inner wall fits against the skin and the distention of the outer wall by the air under pressure exerts a uniform gentle pressure over the surface of the limb, and, gently but effectually, it forces the blood out of the limb. The pressure is then relieved by opening the stopcock and allowing the air to escape from the bag. The blood pours back into the limb and the circulation is thus maintained extremely active through the region by alternating rhythmical compression and release, kept up by a little clockwork. This is arranged to close and open the stopcock automatically as the patient lies in bed. Kuhn has a large bag to cover the leg to the knee or two bags to cover both legs still higher. The high pressure massage can be regulated to be as gentle or powerful as desired; it does not harm even wounds, and the massage can thus be applied for hours at a time. The method is particularly useful in prophylaxis of thrombosis in gynecologic cases, but it also aids in promoting absorption, and it seems to have an anesthetizing action besides its main efficacy in promotion of the circulation not only through the arteries and veins but also in the lympatics. The gentle automatic high-pressure massage can be kept up while the patient is asleep, even during the night, without attention from the attendants. The main field for the application of the method is in the after-care in major operations on the pelvis.

Zentralblatt für innere Medizin, Leipsic

June 29, XXXIII, No. 26, pp. 645-668

166 Silver-Magnesia and Phosphotungstic Tests for Uric Acid in Blood-Serum and Effusions. (Nachweis von Harnsäure im Blutserum und in serösen Flüssigkeiten.) E. Herzfeld.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 25, XXXIII, No. 76, pp. 801-808

167 Frequent Sexual Origin of Pseudophosphaturia. (La pseudofosfaturia.) A. Campani.

Policlinico, Rome

June 23, XIX, No. 26, pp. 929-964

168 *Adiposis Dolorosa Developing Consecutive to Ovariectomy. F. Sabatucci and C. F. Zanelli.

June 30, No. 27, pp. 965-1000

169 Necessity for Vaccination of Troops Against Typhoid. (Vaccinazione antifica delle nostre truppe in Libia.) A. Castellani.
170 The Fatalities in Modern Warfare. (Le perdite—morti e feriti —nelle guerre moderne.) P. Imbriaco.

168. **Adiposis Dolorosa Developing After Ovariectomy.**—A large fibroma was removed from the uterus at the age of 30; the hemorrhages and pain had been so severe that the ovaries were removed at the operation. All these symptoms ceased afterward but others developed from the artificial menopause, vasomotor and mental, periods of excitement alternating with depression and suicidal tendency, and gradually nodular adiposis dolorosa developed, with painful nodules at various points on the forearms, thighs and lower part of the trunk. The patient is now 40 and she has improved very much during the last few months under ovarian treatment and tonics. The headaches and vasomotor disturbances have subsided and no other nodules have developed. Sicard and Russy have reported a case of the nodular form, and Gavazzeni in 1909 published a case of adiposis dolorosa developing after castration, Burr a case in which necropsy showed atrophy of the ovaries and another in which there was colloid degeneration of the thyroid, and others cases in which the adiposis dolorosa accompanied a tumor in the hyphophysis.

Riforma Medica, Naples

June 22, XXVIII, No. 25, pp. 673-678

171 Pleurisy with Pulsating Effusion. (Il meccanismo genetico della pleurite pulsante.) G. Viola.
172 Protozoan Nature of the Kurloff Bodies. (Sulla natura protozoaria dei corpi di Kurloff.) V. Patella.
173 Effect of Decapsulation on Osmosis in the Kidneys. (Gli effetti delloo scapsulamento per il lavoro osmotico der rene.) G. Musso.

Ugeskrift for Læger, Copenhagen

June 27, LXXIV, No. 26, pp. 957-986

174 Improved Blood-Counting Apparatus. (Om Anvendelse af Systemet: "Adskilte Pipetter og Blandingsglas" til almindelig klinisk Blodtælling.) V. Ellermann.
175 Stain for Urine Sediment. (Farvning af Urinsediment.) V. Bie.